Paper TRADE JOURNAL

APRIL 14, 1949

Would you want the slow construction pace

of 47 years ago—
even at lower cost?

The *Engineer* helps reduce time and cost

Three mules and a half-yard scoop were a symbol of efficient construction half a century ago.

Then, horsepower was quadruped and paced by a leather-lunged mule skinner. Now, horsepower is caterpillar-treaded with a diesel engine skinner.

Likewise the "donkey engine" and the "dinkey" locomotive have been superseded and almost forgotten.

The parallel carries through every phase of construction—provided it is well-planned.

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The Engineer contributes multiple and ultimate economies to the construction projects he helps plan and design for his clients.

Engineers for 47 years . . . J. E. SIRRINE COMPANY

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Wringing More Pulp
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At present day costs of logging and cooking, a 10%, 15% or 20% increase in yield means a lot of dollars saved every day. Further, it means fewer trees need be cut to maintain your mill's present output of paper, thus the uncut trees can grow bigger so that each will produce more pulp.... All this is obtained by High Temperature Alkaline Refining with Sutherlands. Commercial installations on kraft and sulphite pulps prove that yields of 60% and over are possible and this means savings of about $6.00 per ton of pulp, at present day costs of wood, power and chemicals. In addition, high strength with high freeness is obtained, which means increased production on the paper machine due to better drainage, plus improved quality.... As pioneers in the development of pre-refining at the pulp mill, our recommendations can be accepted as sound and practical. One of our sales engineers will be glad to give you further details.

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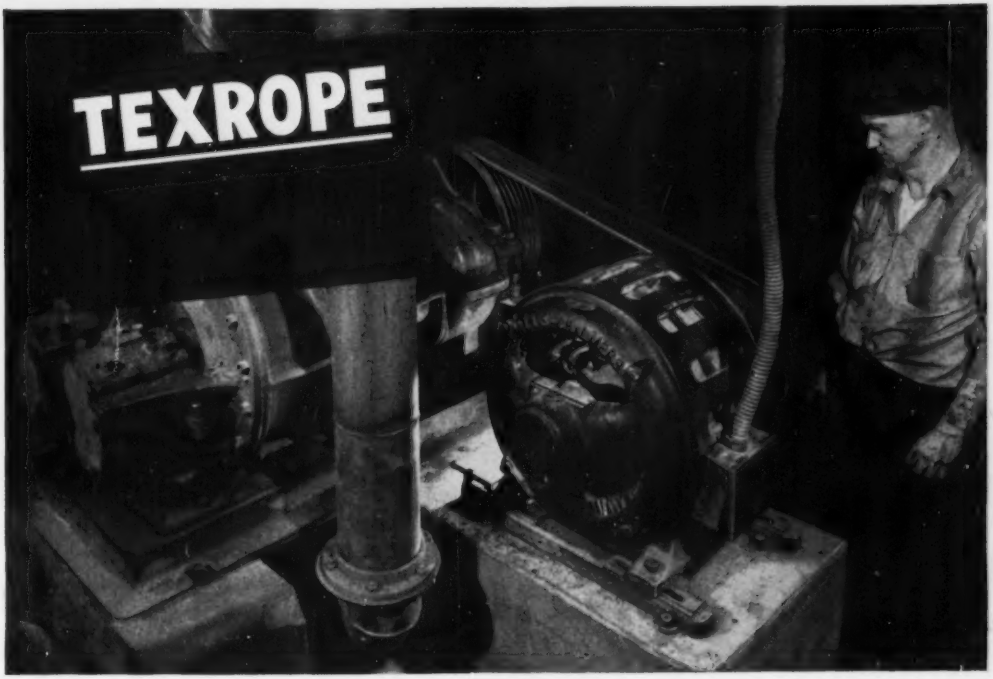

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BELT SLIP ELIMINATED, BEARING DAMAGE STOPPED, POWER WASTE ENDED WHEN *TEXROPE* V-BELT DRIVE REPLACES FLAT BELT.

CHIEF PLANT ENGINEER in this midwest plant says, "The old flat belt on this blower drive was twelve inches wide on twenty foot centers. Not only was it heavy but it also absorbed a lot of power.

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Money-saving performance like this is one of the reasons why more *Texrope* industrial V-belt drives have been installed since 1926 — when Allis-Chalmers originated the multiple V-belt drive — than any other kind.

The *Texrope* line gives you practically everything you need for any V-belt drive . . . V-belts, standard and *Vari-Pitch* sheaves and speed changers . . . all from one reliable source. You can engineer 90% of all V-belt drives yourself with the help of the *Texrope* Pre-engineered Drive Manual. See your A-C Authorized Dealer or District Office or write for Bulletin 20B6956. Also in Sweet's.

Texrope Super-7 V-belts result from the cooperative research of Allis-Chalmers and B. F. Goodrich; and are sold only by A-C dealers and offices. *Texrope* and *Vari-Pitch* are Allis-Chalmers trademarks. A 2648

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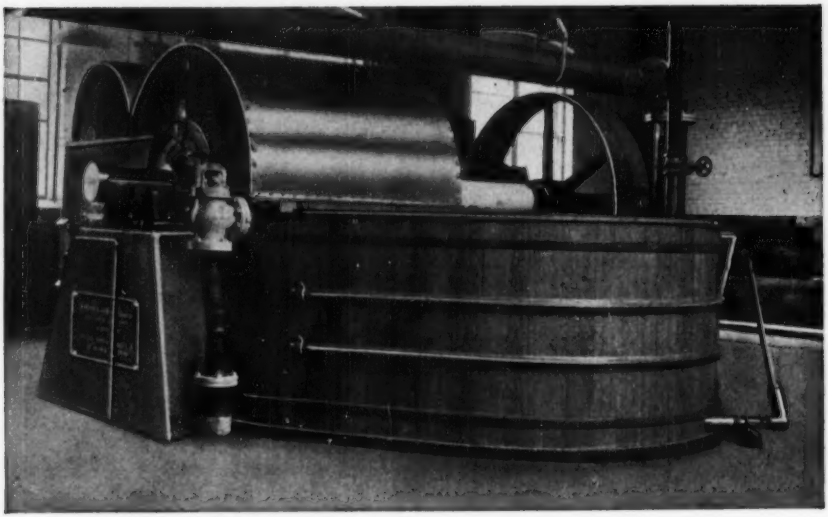
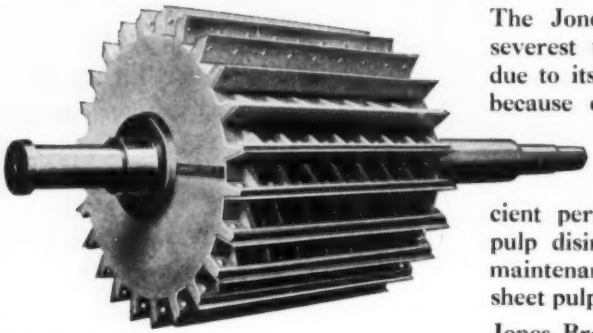


JONES BREAKER BEATERS

ruggedly built to withstand severest use



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Jones Breaker Rolls are made in sizes to fit existing beaters; furnished with any required bar material.

Jones

E. D. JONES & SONS COMPANY-PITTSFIELD, MASS.
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MEMBER

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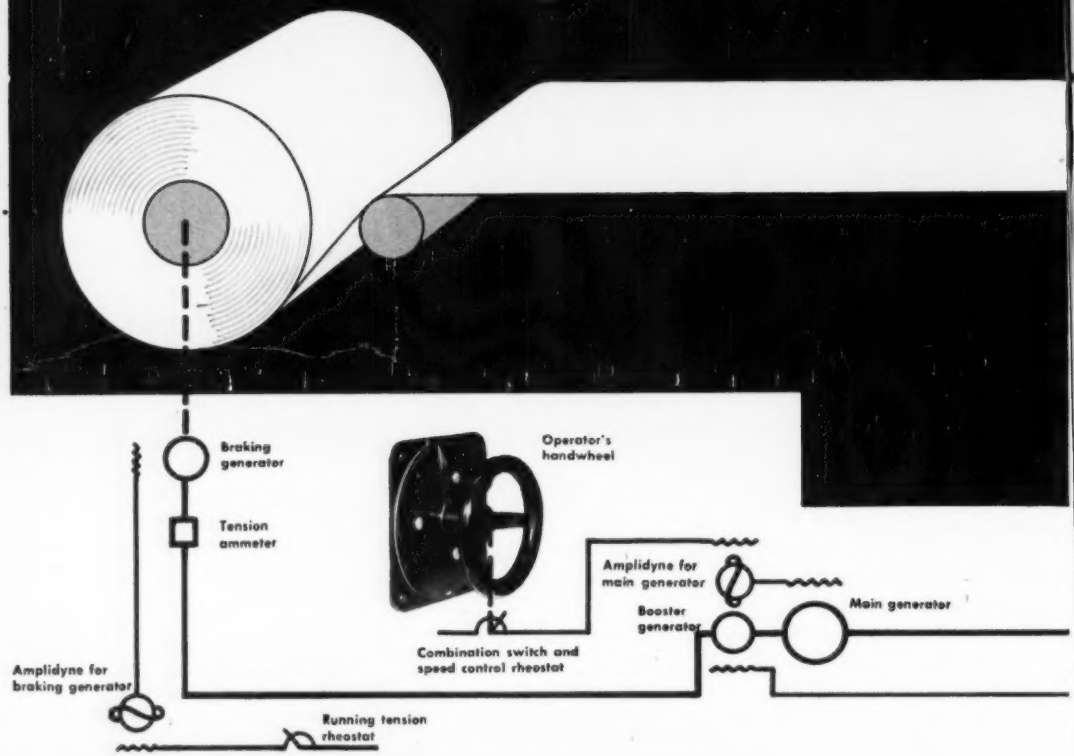

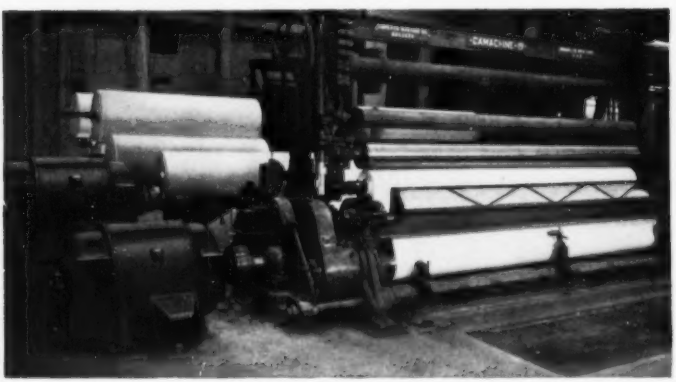

Accurate control of speed and tension by means of a two-motor G-E winder drive help keep quality and production high in this Eastern paper mill.

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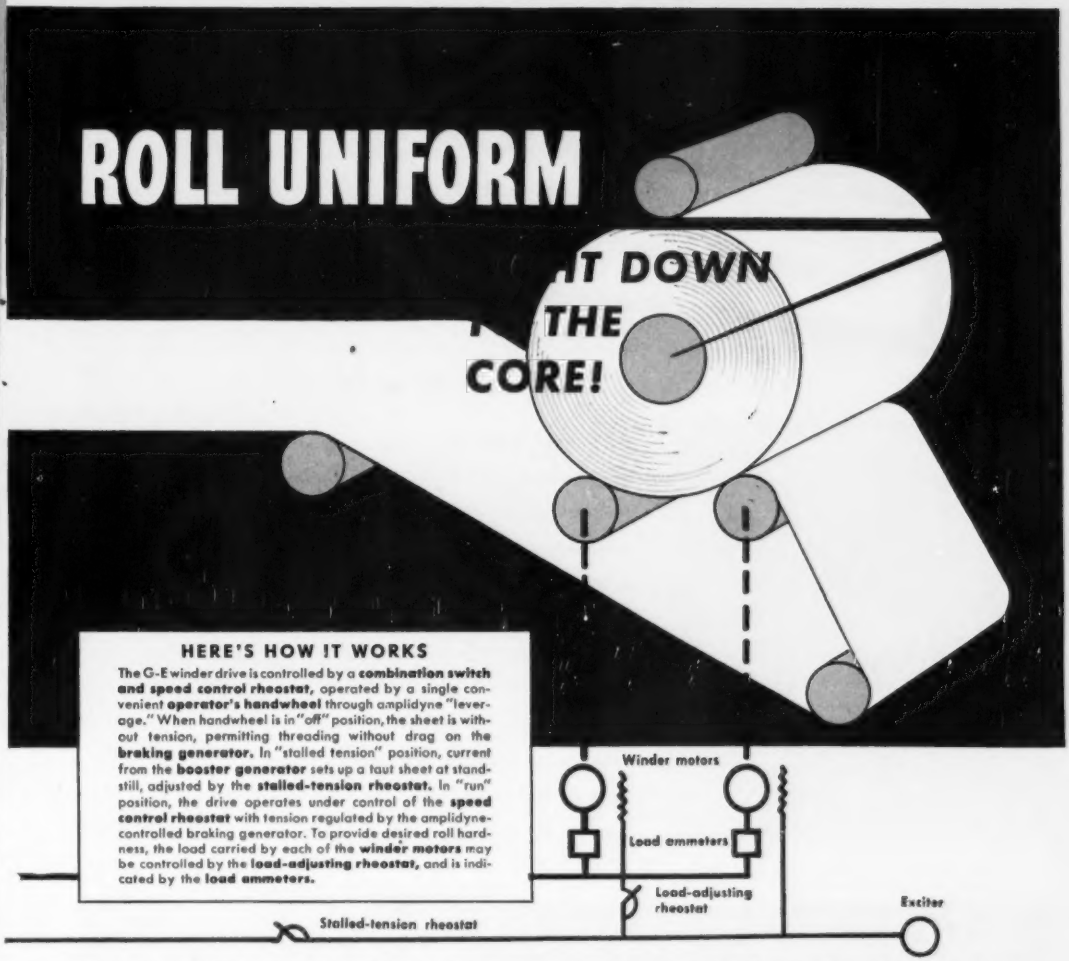
—TO HELP YOU MODERNIZE FOR FASTER, LOWER-COST PAPER-MAKING!

ROLL UNIFORM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CORE!
HERE'S HOW IT WORKS
The G-E winder drive is controlled by a combination switch and speed control rheostat, operated by a single convenient operator's handwheel through amplidyne "leverage." When handwheel is in "off" position, the sheet is without tension, permitting threading without drag on the braking generator. In "stalled tension" position, current from the booster generator sets up a taut sheet at standstill, adjusted by the stalled-tension rheostat. In "run" position, the drive operates under control of the speed control rheostat with tension regulated by the amplidyne-controlled braking generator. To provide desired roll hardness, the load carried by each of the winder motors may be controlled by the load-adjusting rheostat, and is indicated by the load ammeters.
Winder motors
Load ammeters
Load-adjusting rheostat
Exciter
Stalled-tension rheostat

General Electric Winder Drives give you accurate control of speed and tension for smooth, even-density winding—more rolls per day!

Amplidyne-controlled, these modern General Electric winder drives provide the "musts" for fast, even winding—smooth speed changes, rapid acceleration and deceleration, and a wide range of speeds.

You wind more rolls per day with a G-E winder drive because running speeds are boosted, non-productive splicing time is cut and you stop faster, resume running speed faster. Threading, too, is quicker and easier.

You wind uniformly hard or soft rolls as desired. Smoother speed changes mean fewer winder tears during threading or accelerating. And there's no damage to finish, formation, or caliper of the paper.

For extra ease of operation, a single handwheel gives you complete command of the winder at all times—for stalled tension, starting, running, stopping, jogging, or threading.

It's up to you. If you're thinking of speeding up your winders to keep pace with today's faster paper machines, call in a G-E sales engineer. He'll gladly go into details on modernizing your present drives. Meanwhile, write today for your copy of a new bulletin "Winder Drives for Paper Mills," GEA-5190. *Apparatus Department, General Electric Company, Schenectady 5, N. Y.*

GENERAL ELECTRIC

655-1

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*Interesting Facts Concerning This Basic Raw Material from the Gulf Coast Region

*MINING

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Loading operations at one of the huge vats of Sulphur at our Newgulf, Texas mine. Such mountains of Sulphur are constantly being built at our mines, from which shipments are continually made.

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Mines: Newgulf and Moss Bluff, Texas

AMBERLITE W-1—a water-soluble polymer for improving the dry and wet tensile and Mullen, as well as the fold, and the abrasion resistance of paper.

RHOZYMES BB and E-5—for enzyme conversion of starch.

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TRITONS—surface-active agents with a score of uses in paper manufacture—in caustic cooking of cotton fiber, as a dispersing agent for pigments and metallic soaps, emulsion-type coatings.

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UFORMITE, RHOZYME, TAMOL, TRITON, AMBERLITE, HYAMINES are *trade-marks, Reg. U. S. Pat. Off.*

Don't let the bottom drop out of your market...

WET-STRENGTHEN your paper with Uformites

"If it isn't wet-strength paper I don't want it!" Before customers begin saying that to you, safeguard your market—wet-strengthen your paper with the UFORMITES.

Without special equipment—for as little as $4 per ton of paper—the UFORMITES boost wet Mullen values by 300%! And at the same time, they increase wet rub and scuff resistance, improve wet and dry tensile, fold, and the printing characteristics of coated paper.

Actually, you'll save money by making a better product. For the UFORMITES not only let you use lower-grade pulps without sacrificing paper quality, they also improve the sizing efficiency of rosin and improve retention of beater additives. If you make paper toweling, the UFORMITES eliminate the see-saw relationship of wet strength and absorbency. And in twisting tissue, the wet-strength resins prevent breakage on paper-twisting machines.

Whether you manufacture towels, bags, reproduction, or printing papers, glassine, greaseproof wrappings, or twisting tissues, you'll profit from using the UFORMITES. Write today for full details and samples of these urea formaldehyde resins.

Handy Facts on Wet Strength
Your copy of this free booklet will answer your technical questions about the UFORMITES, and how they are used to increase wet strength. Write for it today.

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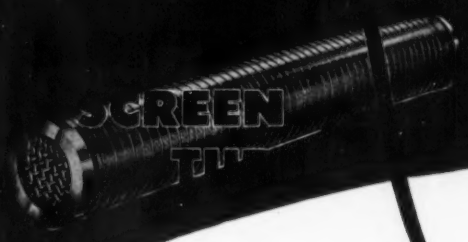

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PORO-SCREEN Filters are a practical method for filtering water direct from the river or other source. Removes sand and grit 15 times finer than 1/32". Delivers a large volume of filtered water suitable for general mill service in the processing of newsprint, box board and other coarse grades of paper stock.

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PORO-STONE Filters provide effective filtration for water required in high grade paper stock. Installed following sand filter equipment, the PORO-STONE Filter eliminates finest sand, pipe scale and all foreign matter which might impair paper quality.

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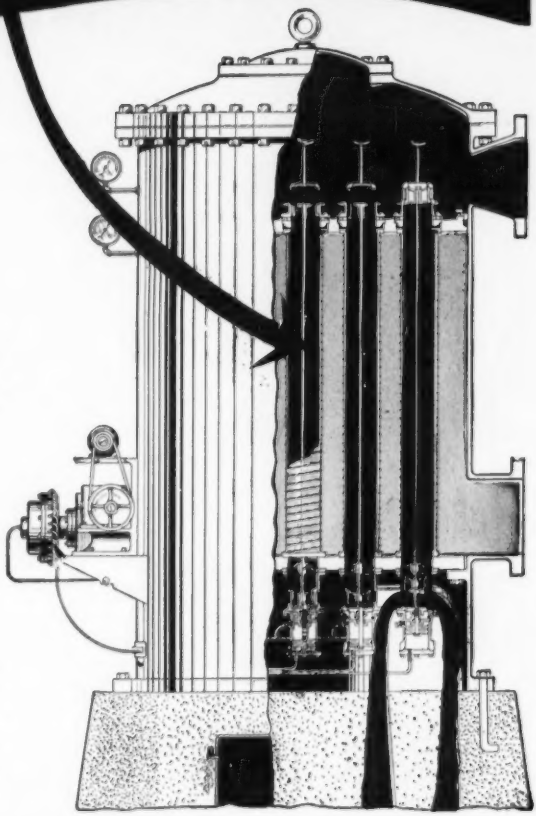
ADAMS Filters (both PORO-SCREEN and PORO-STONE) are designed for continuous, automatic operation. No moving clearances to pass foreign material—no shut-downs required by back-wash cleaning—very little attention needed. *Constant filtration assured at all times.* Built in several sizes to meet your requirements. Write for Bulletin 901.



★ R. P. ADAMS COMPANY, INC. ★

231 EAST PARK DRIVE, BUFFALO 17, N. Y.

PORO-STONE AND PORO SCREEN

Paper TRADE JOURNAL

APR. 14, 1949

VOL. 128, NO. 15

State Operated, Federally Aided Forestry Research

WASHINGTON—A new forestry research program, State-operated, but Federally aided, was forecast April 7 when the House Agriculture Committee reported the appropriations for Agriculture Department for the next fiscal year.

While critical of some phases of Forest Service management and some other aspects of administering of Federal forest lands, the committee took note of a strong demand in some quarters for establishment of additional forest and range experimental areas.

"The committee believes it would be better for the experimental forests to be operated in the several states by such state agency as the legislature of each state may designate under a plan whereby the Federal government would make anual appropriations of a fixed sum of money, as it does for State agricultural experiment stations," Chairman Whitten, of the Committee commented.

The money so appropriated would be allotted to the various states, he suggested, with the states making a matching contribution. He said it was realized that a very substantial amount of forestry research would still have to be carried on by Federal agencies, because of the size of the Federal domain in forest lands.

"The committeee is having explored with the Department the possibility of setting up a plan along the lines here discussed," he said. "Should a workable plan eventuate, a bill effectuating the plan can be introduced for consideration and study by the appropriate committee."

The bill reported this week provides $1,172,000 for experiments, investigations and tests of forest products, about $15,000 under the amount appropriated for the current fiscal year.

Among other appropriations were $1,995,000 as a supplemental estimate for repair of national forest roads and other improvements in the areas of Washington, Oregon, Montana and Idaho, damaged by floods last year. Of this amount, the present bill authorizes $150,000 for construction of a railroad spur to facilitate loading and removal of timber products at Avery, Idaho, to open up an estimated 2,000,000,000 board feet of timber for logging, now shut off for lack of such road.

New Eng. Paper Outlook Solid

BOSTON, Mass.—The New England paper and wood pulp industry looks healthy and is trying to be wealthy and wise in the face of returning competition and choosier demand, a survey made here disclosed on April 5.

Operators in one of the nation's strongest papermaking areas are not unhappy, by and large, about prospects for 1949.

Unemployment is low and prices remain firm. Buyers are back in the driver's seat, and competition is taking on its pre-war edge.

An experienced purchasing agent for one of the big companies sounds a note of hard-headed optimism. "The people who make the good paper are all right," he said. "Those who don't are plumb out of luck."

He looks for a slight drop in prices this year, particularly since pulp and other raw materials used in the manufacture of fine paper products are cheaper.

An economist who has studied the paper picture says: "It looks as if the jobbers and wholesalers have given up the battle for lower prices." Yet, he adds, it is doubtful if manufacturers will be able to buck successfully a trend toward declining prices in the fine paper field. With extra quality pulp from Scandinavia dropping off $10 to $15 a ton, domestic mill owners may have to ask for less to meet import competition, he thinks.

So far, according to this observer, pulp prices have remained solid despite the fact that mills have been buying less wood because of their already ample inventories.

Waste paper prices fell off 75 per cent during the first two months of the year, he claims, because the buyers' market forced manufacturers to stiffen their specifications for quality paper. This meant a higher ratio of wood pulp to waste paper.

Holyoke is a leader in the manufacture of top-grade paper. One operator there describes business as "good," another calls it "spotty."

It has declined in some line of writing paper, but the demand is good in some of the specialties. A trend toward slowed sales is laid to caution on the part of jobbers who in recent months have been tending to buy on a "hand-to-mouth" basis.

Jobbers seem reluctant to maintain high inventories because of the hazy outlook for business in general. One producer notes a recent increase in the number of rush orders for small quantities.

Although two small companies producing highest grade paper folded last year, most mills have resorted to a four-day week instead of layoffs or shutdowns.

The four mills in Fitchburg are operating on four to five-day weeks and their owners are optimistic generally. Orders have been spotty, and prices are expected to decline. One manufacturer finds business "subnormal but nearer normalcy than it was during the war."

Operators in Turners Falls note a slight drop in fine paper prices but think the trend may reverse in the future.

The Associated Industries of Maine reports scattered lay-offs in the high-grade paper industry, with orders running 75 percent of capacity. The 48-hour week has been reduced generally to 40 hours.

Summer business will be normal, with an upswing possible by fall, according to the A-I-M. No price reduction is anticipated in the near future. Competition with other areas throughout the nation is keen.

TAPPI Coating Conf., Grand Rapids, Apr. 26-27

GRAND RAPIDS, Mich.—The 1949 Coating Conference of the Technical Ass'n. of the Pulp & Paper Industry will be held at the Pantlind Hotel, April 26-27. Room reservations should be made direct with the hotel.

The tentative program of the technical sessions is as follows:

April 26 at 9:00 a. m.—(1) "The Mechanics of Adhesion in Mineral Coated Papers With Particular Emphasis on Testing Methods," by Glenn Davidson, Aurora, Ill. (2) Panel Discussion of Mr. Davidson's paper.

April 26 at 2:00 p. m.—(1) "Application of Styrene-Butadiene Copolymers as Adhesives in the Production of Mineral Coated Printing Papers," by E. K. Stilbert, Dow Chemical Co., Midland, Mich. (2) "The Use of Hydroxyethyl Cellulose as an Adhesive in the Production of Mineral Coated Printing Papers," by D. Robert Erickson, Consultant, Kalamazoo, Mich.

April 27 at 9:00 a. m.—(1) Development of Soy Protein for Paper Coating With Emphasis on Viscosity, Color, and Adhesive Strength," by A. Gotthoffer, Drackett Products Co., Cincinnati, Ohio. (2) "The Use of Titanium Pigments for Paper Coating," by William R. Willets, Titanium Pigment Co., New York, N. Y.

April 27 at 2:00 p. m.—(1) "Development and Application of the Microjet and Syncroset Coater," by B. R. Newcomb and A. J. Gaio, John Waldron Corp., New Brunswick, N.J. (2) Panel Discussion on Paper Machine Coating and Other Coating Subjects.

There will be a dinner at 6:30 p. m. on April 26, followed by attendance at St. Cecelia Theater at a play "John Loves Mary" by the Grand Rapids Civic Players.

On April 27, Dwight Stocker, president of the Michigan Paper Co., Plainwell, Mich., will preside as toastmaster. The principal speaker will be Benton R. Cancell, vice-president, St. Regis Paper Co., Deferiet, N.Y.

Mill Visits: April 28, will be devoted to visits to the paper and coating mills in the Kalamazoo area. Bus transportation will be furnished. The following mills will have open house: Allied Paper Mills, Hawthorne Paper Co., Kalamazoo Paper Co., Kalamazoo Vegetable Parchment Co., Lee Paper Co., MacSim Bar Paper Co., Michigan Paper Co., Rex Paper Co., Bryant Div., St. Regis Paper Co., and Sutherland Paper Co.

Ladies' Program: Ladies are welcome to attend the meeting. Features of a special program that have been arranged for. They will be welcome at all other scheduled events during the meeting.

Chairmen of Committees: General Chairman — Paul W. Batholomew, Hawthorne Paper Co., and Chairman of the Kalamazoo Valley Section; Program Chairman—W. A. Kirkpatrick, Allied Paper Mills; Entertainment, Transportation and Mill Visits Committee—R. R. Buss, Hercules Powder Co.; Printing Committee—Jack Dickson, R. T. Vanderbilt Co.

This conference is a national meeting sponsored jointly by the Coating Committee of TAPPI; Werner Kaufmann of Kupfer Bros. Paper Co., Chicago, Ill., chairman, and the TAPPI Kalamazoo Valley Section.

Richey Itinerary

CINCINNATI—John A. Richey, secretary-treasurer of the Paper & Twine Ass'n., will "ride circuit" on a string of local and state merchant's associations during April, as follows: Illinois State Paper Merchants Ass'n., Hotel Blackstone, Chicago, April 12, noon; Chicago Paper Ass'n., Hotel Bismarck, evening, April 12; Wisconsin Paper Merchants Ass'n., Hotel Astor, Milwaukee, Wednesday, April 13, noon; Michigan Paper Merchants, Hotel Rowe, Grand Rapids, April 14, noon; Louisville Paper Merchants, Hotel Brown, Louisville, April 19, noon; Indianapolis Paper Merchants, Hotel Lincoln, Indianapolis, April 20, noon; Columbus Paper Merchants, Columbus Athletic Club, Columbus, Ohio, April 26, noon; Cleveland Paper Merchants, Hotel Cleveland, Cleveland, April 27, noon; Toledo Paper Merchants, Hotel Commodore Perry, April 28, noon.

ECA Authorizations

WASHINGTON—The United Kingdom and Ireland were granted extensive supplies of paper and paper products in ECA authorizations, it was announced during the week ending April 9.

Included were: for Ireland, second quarter, $340,000, from Canada and Newfoundland; also to be obtained from Canada and Newfoundland, pulp, paper and paper products totaling $9,100,000, for United Kingdom, second quarter; part of the United Kingdom allotment apparently represents a transfer from fourth quarter, 1948, which was to have been obtained in the United States.

Extensive supplies of manila or abaca fibers are also being included in ECA authorizations for various European countries.

The bulk of these authorizations are for procurement in the Philippines, but some orders are being directed toward Latin American sources.

Among recent authorizations were the following: for Bizonal Germany, Manila or Abaca, $100,000, from Philippines; for same country, sisal or henequen, $543,000, from Latin America; same country, vegetable fibers (cocos or coir), $100,000, from Philippines; same country, istle or Tampico fiber, $200,000, from Latin America; for Denmark, Manila or Abaca, $300,000, from Philippines; there have been some minor reductions in fiber authorizations for other areas, announced previously.

Chicago TAPPI Meet

CHICAGO — The next meeting of the Chicago Section of TAPPI, set for April 18, will feature two speakers on tube winding. J. J. Callahan, manager of the Cleveland Container Co., Plymouth, Wis., will discuss spiral-wound containers and Burger Graves, assistant sales manager of the Sefton-Fibre Can Co., St. Louis, will discuss cylindrical containers and various closures. The two speakers will also discuss lithographed labels, adhesives and treatments for chemical resistance and decorativeness of these containers.

Ocean Falls Film Study Group

OCEAN FALLS, B. C. — "Incentive to do do better work may be due to interest in the job, pride of workmanship, ambition or a combination of many other reasons, but it is seldom inspired by financial reward alone," says H. F. Pack, electrical superintendent of Pacific Mills, Ltd.

The first reason for incentive, "interest in the job," is perhaps the most important, and the greater the knowledge of the job, the greater the interest, Mr. Pack continues.

"Educational authorities and leading electrical manufacturers of Canada and the U.S.A. have realized the capabilities of sound film and slide film as a means of visual education, and have produced, under the direction of experts, many fine films and even entire courses of study covering practically every branch of electrical work. It was to take advantage of these films that in September, 1946, the Electrical Film Study Group was formed to view films borrowed from the University of British Columbia, Vancouver School Board, Canadian General Electric, Canadian Westinghouse Co., and Northern Electric Co. When sufficient interest had been aroused, a contribution from the group was matched by one from Pacific Mills, Ltd. The first film was purchased with the agreement

that films become the property of the Ocean Falls School Board.

"This arrangement, and the satisfaction with the first film, led to the purchase of other films and a better attendance, with the result that the 1946-7 season closed with a paid-up membership of 54, an average attendance of 35 members at 21 meetings, during which 55 sound films and 19 slide films were shown.

"One hundred and forty-nine films were shown during the 24 meetings of the 1947-8 season, and the average attendance was up to 37. Every member subscribed to the purchase of future films, and all work was voluntary.

"In 1948, the group purchased a projector for 35 mm film strip, 2" x 2" slides and 16" 33⅓ RPM recordings which has given excellent results and a clear understanding of the 3679 slides which were screened during the past season.

"The film library now consists of seventeen 16-mm sound films and 56 slide films, plus the General Electric Industrial Electronics Course of twelve sound slide films, and the Westinghouse Electrical Instruments Course of six sound slide films, totaling nearly 40 hours of interesting instruction, which, with an occasional borrowed film, enables the group to hold 24 two-hour meetings each winter season. As films on other subjects are produced, the group hopes to acquire them.

"That considerable benefit has been gained from the meetings is evident by the interest shown, the improved quality of workmanship, the pride in the job, and the results in goodwill which cannot be measured in dollars," Mr. Peck points out.

Ketchikan Mill Construction

WARD'S COVE, Alaska — Construction will start this Spring on a $33,000,000 550-ton cellulose wood pulp mill here for the Ketchikan Pulp & Paper Co., a subsidiary of American Viscose Co. (ED. NOTE: Ward's Cove is six miles north of Ketchikan.)

The Morrison Knudsen & Co. of Boise, Idaho, is expected to handle most of the construction. The Howard S. Wright Co. of Seattle, Everett and Bellingham, Wash., has been awarded the contract for installation of pulp mill machinery in the new plant.

First item to be constructed is a dock for unloading building materials. A 325-ton mill will be the initial structure with breaking of ground for it proposed this spring. Work will be started on an additional 225-ton portion on completion of the first unit.

During the 30 to 36-month period of construction, non-resident workers will be housed on three old ferries.

Negotiations have been completed with the United States Forest Service for a 50-year timber supply.

An adequate supply of suitable water has been found available from Ward's Lake behind the cove.

Power will be provided by the Ketchikan public utilities in the early stages of construction and, if the magnesium process is used, in the plant's operation.

Prince Rupert, B. C., is expected to reap benefit from establishment of the Ketchikan mill. The Ketchikan Pulp & Paper Co. plans establishment of a car ferry service to carry much of the plant's output to the Canadian National Railways there for trans-shipment east. The advent of Alaskan statehood will facilitate use of the northern British Columbia port in serving such Alaskan industries as the new mill. When Alaska becomes a state, the Jones Act will become inoperative under state rights.

Carswell, Vayo St. Regis VPs

NEW YORK — The St. Regis Paper Co. on April 8 elected Arch Carswell and Reginald L. Vayo as vice-presidents.

Mr. Carswell joined the company in 1928. He became general sales manager of the multiwall bag division, with headquarters in New York, early in 1948. Prior to that he was Pacific Coast manager of the division. He will continue in charge of sales for the division.

Mr. Vayo joined St. Regis in 1945 to take charge of pulp sales. Previously he was manager of the foreign department of the Brown Co. and the Brown Corp. He was named to the WPB in May, 1942, serving as Chief of the Lend-Lease Division of the Allocation Office, of the Forest Products Bureau until July, 1943, when he re-joined the Brown Co. in New York. In March, 1943, he was recalled to the WPB as a "dollar-a-year man." Mr. Vayo will now direct sales of kraft paper and board as well as pulp.

CALCO RESEARCH AND DEVELOPMENT DEPARTMENT EXECUTIVES

Consolidation of research, process development and dyes technical service into a single department has been made by the Calco Chemical Division of the American Cyanamid Co., Bound Brook, N. J. The new department will be known as the research and development department. . . . K. H. Klipstein, (1) assistant general manager, Calco Chemical division, is in charge of the department. . . . Dr. H. Z. Lecher, (2) since 1938 associate director of research, has been named director of research of the Calco Chemical Division. In 1938 he was appointed associate director of research and it was in this capacity that he directed mainly Calco's research in dyes and pigments. . . . Dr. Mario Scalera, (3) appointed assistant director of research in charge of the organic research section, is a native of Italy who came to this country in 1927. He was appointed assistant director of the organic research section in 1945, and was responsible mainly for research on vat dyes, soluble vats, pigments and brighteners. . . . Dr. R. H. Kienle, (4) widely known to the coating industries, particularly for his fundamental work in polymers and in alkyd resins, has been named director of application research. . . . Dr. A. L. Peiker (5), formerly manager of the dyes technical service, has been appointed Associate Director of Application Research. In 1940 he became an assistant director of the physical chemical research section and several years later was appointed associate manager of the dyes application laboratory. . . . Dr. R. P. Parker, (not pictured here) is assistant director of research. He will be in charge of the pharmaceutical research section. He was appointed an assistant to Dr. M. L. Crossley, research director, in 1946 and in 1947 was named an assistant research director.

NATIONAL PAPER TRADE ASSOCIATION LUNCHEON, HOTEL WALDORF-ASTORIA, NEW YORK, APRIL 4, 1949

46th Annual Convention

Seated on dais, left to right: J. H. Londergan, S. J. Levitan, P. M. Jones, R. W. Roehm, Alan B. Helffrich, E. W. Tinker, L. S. Pollock, D. C. Everest, Sen. Francis J. Myers, Ralph G. Luff, Bishop Frank Pierce Corson, L. A. Ramaker, A. O. Buckley, Arthur W. Carroll, R. S. Knox, W. G. Leathers, Ralph Schnitzer, Harold Held and Arthur H. Chamberlain. . . . Total attendance at the luncheon was in excess of 500 persons.

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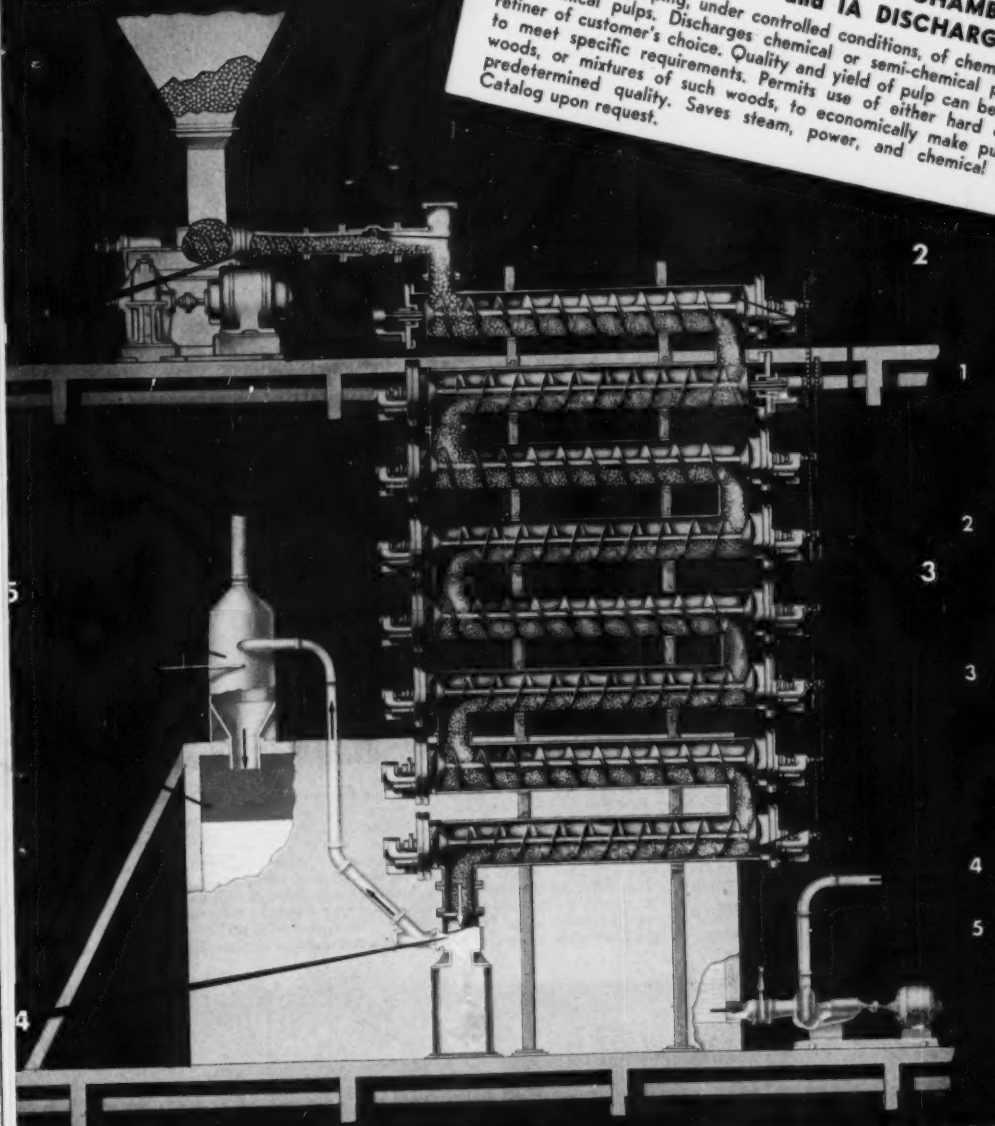

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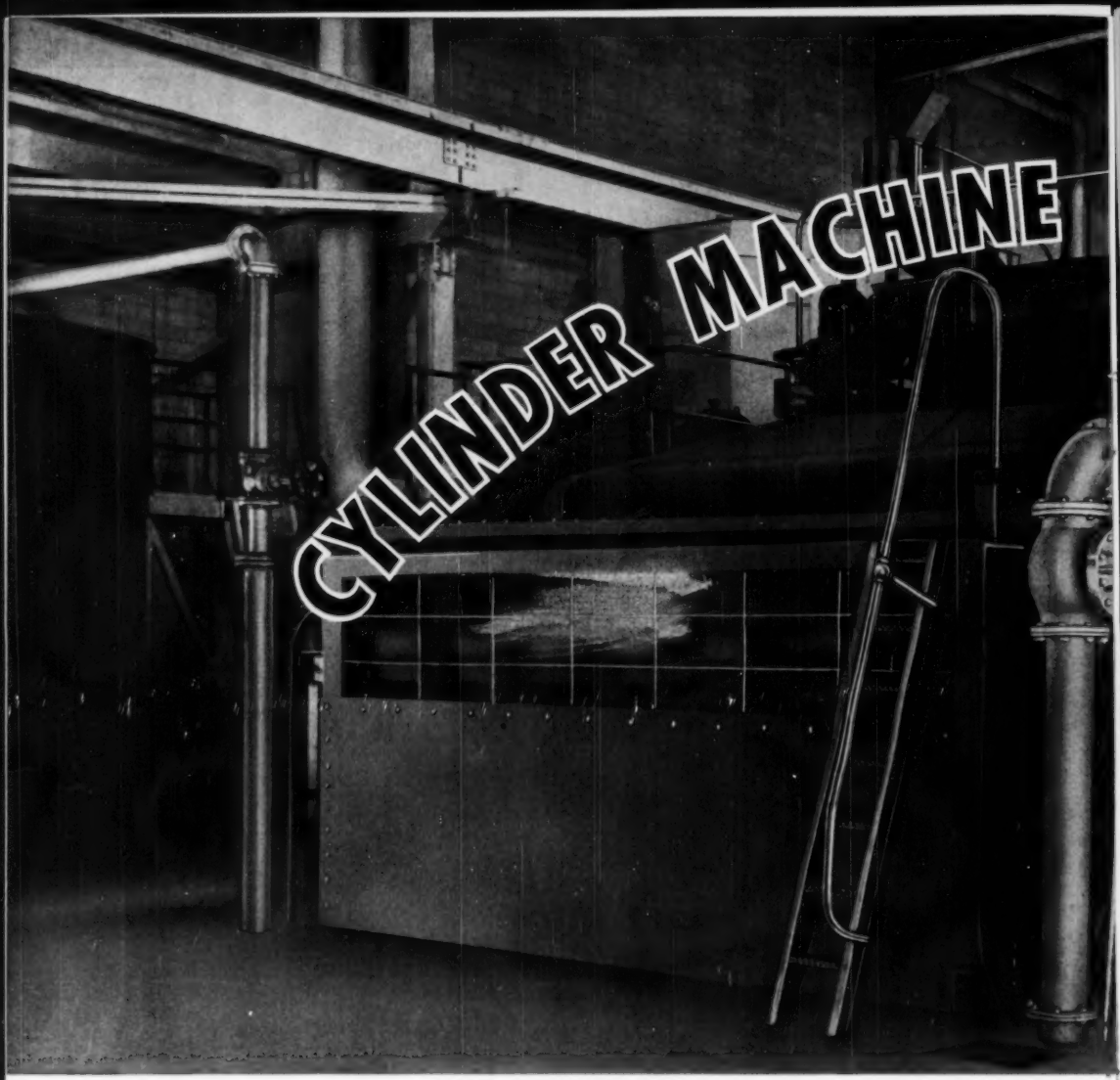
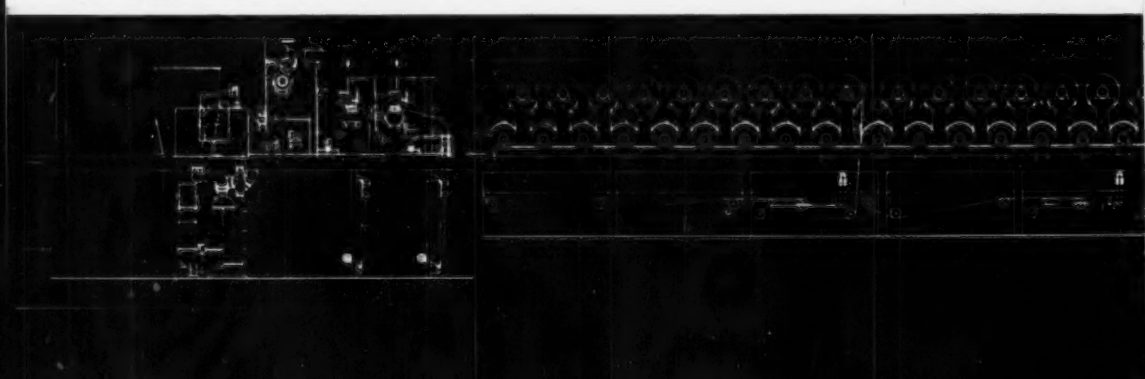


168" Puseyjones Single Cylinder High Speed Felt Machine in Cedarhurst, Maryland, mill of Congoleum-Nairn, Inc. Designed and built for the manufacture of highest quality Flooring Felt.

Line drawing of new machine. Features include latest type Stream-Flow Vat System with Vacuum Cylinder Mold, Flow Spreader and Up-Flow Head Box; Press Part of pneumatically operated Simplex design, including suction primary press, main plain first press and forward suction second press; Dry Part arranged in four drive sections with sixty-seven 60" diameter dryers mounted in anti-friction bearings, with enclosed gearing, and rope carrier system for threading the sheet; latest type Steam Joints with dual revolving siphons; One 3-roll Calender Stack with heavy duty anti-friction bearings; Pope-Type Reel; Unwinder with pneumatically operated brake; 2-Drum Winder with hydraulic unloading table; all rotating parts dynamically balanced for top driving speeds. Multiple-generator type sectional electric drive.



One of the great satisfactions in the building of papermaking machinery is an outstanding installation like this one at Congoleum-Nairn, Inc.

This new Puseyjones Cylinder Felt Machine is now in operation producing the highest quality flooring felt. The feature of the machine is the Stream-Flow wet end with vacuum-type cylinder mold which permits superior formation at new high speeds. In every detail from vat to winder, the new machine reflects the latest developments in the paper and felt making art.

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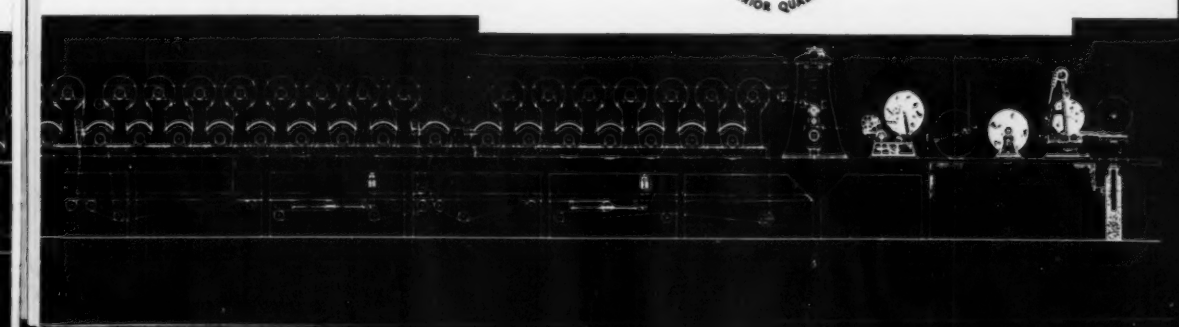
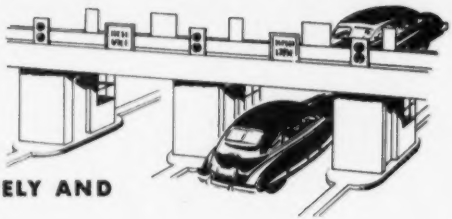
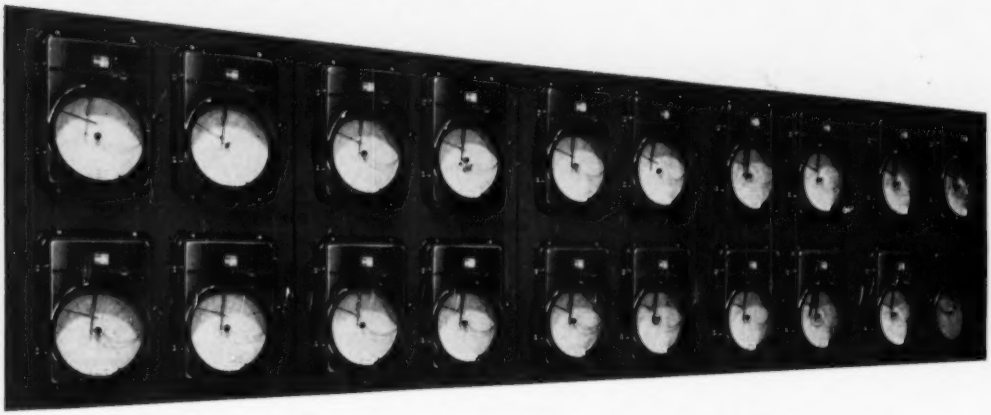


This Panel Operates Like a Toll Station



TO REGULATE FLUID "TRAFFIC" ACCURATELY AND APPORTION COSTS EQUITABLY



19 Bristol Electric Flowmeters in this turbine room tell at a glance and give accurate records of the flow of steam supplied to 5000 kw turbine, by-pass steam, turbine exhaust, feed water, steam to deaerating heater, to chemical plant, to machine room, to bleach plant, to digester, to acid plant, to 2500 kw extraction turbine, condensate from machine room, and return water from digester.

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Bristol Flowmeters—both mechanical and electric—are featured by forged steel meter body; accurately-machined float chamber; large, powerful float; interchangeable high pressure tube; pressure-tight, stainless steel bearing. Available with accurate integrators.

Write for Bulletin F1600 on Bristol Electric and Mechanical Mercury Manometer Type Flowmeters for recording, integrating and controlling. THE BRISTOL COMPANY, 148 Bristol Road, Waterbury 91 Conn. (The Bristol Co. of Canada, Ltd., Toronto, Ont. Bristol's Instrument Co., Ltd., Lynch Lane, Weymouth, Dorset, England.)

60 YEARS...1889-1949

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Condensation of

Techniques for Handling Polyethylene Resins

J. K. HONISH

Development Engineer, Bakelite Corp.

Ingenuity and creative genius are attributes identified with scientific accomplishments. Plastics are end products resulting from these efforts which in many cases are taken for granted. Members of the Plastics Industry should never do so. This is a dynamic industry creating one challenging situation after another. There is no freezing or petrification of either ideas or the future.

Research is a live and intense affair. Development and manufacturing effort thrives on the outmoding of uneconomic operations by the perfection of improved methods. Moving the products into the fields of commerce and industry, for peace or war, is the life blood of our existence which one hears so much about as "our standard of living."

The development of polyethylene resins and the art of converting them into a variety of useful products is a typical example, and the various techniques used for handling these resins is a subject of great interest to all those engaged in the plastics industry. These resins offer a combination of such unusual characteristics, that they cannot help but stimulate the imagination of manufacturers and fabricators everywhere. The stream of products that is being made from polyethylene continues to expand dramatically.

Today, one can buy dishwear and kitchen containers that are tasteless, odorless and unbreakable, to say nothing of the pleasing appearance and neatness that they provide. Films provide packaging materials for both commercial and home use that are like nothing previously offered. Bottles, closures, upholstery materials, and even drainage pipes are a few of the other diversified products that are being made available.

Historically, it was known as early as 1933 that ethylene could be polymerized to a resinous material, but these early polymers were of a grease-like consistency or else quite similar to petroleum waxes. The process for this polymerization utilized very high pressures and temperatures, and hence, made a rather difficult chemical engineering problem in transposition from the laboratory to large-scale production. Commercial polyethylene was first produced in the United States in 1942.

Presented before the S.P.I. Conference at Santa Barbara, Calif., March 17, 1949.

Since their connection to the Paper Industry would be remote, the sections on bonding, casting, machining and molding have been deleted.

Table I
Properties of Polyethylene Resins

Type	Molecular Weight	Description	Softening Temp. (ca.) °C	Viscosity @ 130°C Poises	Tensile PSI	% Elong.	Yield PSI	Brittle Temp.
DXL-1	1,000	Grease	37.5	0.3	....	...	....	.....
DXL-4	4,000	Wax	93	5.2	....	...	....	.....
DXL-7	7,000	Soft resin	95	120	615	40	....	—14°C
DXL-10	10,000	Resinous	100	8×10^2	....	...	....	.....
DXL-12	12,000	(DYLT)	102	3×10^3	910	100	....	—18°C
DXL-14	14,000	.....	104	14×10^3	....	...	....	.....
DXL-16	16,000	.....	106	50×10^3	....	...	....	.....
DXL-19	19,000	(DYNF)	108	4×10^4	....	...	1,450	—55°C
DXL-21	21,000	(DYNH)	110	1×10^5	1,800	550	1,475	>—70°C
DXL-23	23,000	(DYNJ)	...	1.5×10^5	....	...	....	.....
DXL-28	28,000	.....	112	3×10^7	24,000	575	1,600	>—70°C
DXL-34	34,000	.....	112	1×10^8	3,000	625	1,800	>—70°C
DXL-38	38,000	.....	112	3×10^8	3,000	625	....	>—70°C

A quite satisfactory product of higher molecular weight was obtained, and its only major use was as the dielectric for high frequency cable.

Thus, from 1942 to 1949, some seven years later, rather significant progress has been made in the production of polyethylene resins as well as in the market acceptance of the products produced. This gives due recognition to the outstanding properties of the polyethylene resins and the creative efforts of the sales personnel of the plastic industry.

Polyethylene resins belong to the thermoplastic group of plastic products. They are permanently fusible resins being converted by heat and pressure into a multiplicity of forms and shapes ranging from thin transparent films to thick molded sections.

The chemical structure of the polyethylene resins is described as essentially linear polymers of ethylene ranging in molecular weight from 1000 to 40,000. The principal commercial used type of polymer is a medium molecular resin (DXM) and has an average molecular weight of 20,000 (DYNH).

The medium and high molecular weight (DXM and DXH) polyethylene resins are semi-rigid plastics, translucent white in color, of low unit weight and are characterized by their outstanding chemical, electrical and physical properties. In heavy sections they appear to be hard, horny-like plastics; whereas, the same type of resin in a thin film can be highly transparent and flexible with the same fundamental physical, chemical and electrical properties.

The very high molecular weight resins are tough horny-like substances which no longer have the unctuous feel of the medium or lower molecular weight resins. The very low molecular weight polyethylene resins start as greases; with increasing molecular weight they are soft balsam-like resins and eventually occur as semi-hard waxes and resinous materials. The physical properties of the low molecular weight resins are quite similar to those of superior grade microcrystalline waxes. It is interesting to note that one of the outstanding uses for the low molecular weight polyethylene resins is with the petroleum waxes to improve the quality of the products of this very substantial industry.

Table I summarizes the significant properties as related to the average molecular weight of the polyethylene resins.

Our specific interest at this time is with the various methods used for handling the different types of polyethylene resins. As such, one should recognize that the Plastics Industry is concerned with the conversion of plastic raw materials into semi-finished or finished articles using a variety of methods, which may be classified as follows: Bonding, Casting, Coatings, Extrusion, Laminating, Machining, Molding.

Coatings: Solution coatings normally use polyethylene resins of medium molecular weight such as 20,000 (DYNH). Whereas, polyethylene resins are highly resistant to most chemicals and solvents at normal ambient temperatures, solutions can be produced using certain chlorinated and aromatic solvents at elevated temperatures.

To effect solution having a solids content of 35 percent polyethylene in a solvent such as toluene, a temperature of 194 deg. F. or more, must be maintained to keep the resin dissolved. If

the temperature is lowered, gelation and ultimate precipitation of the resin will result in a complete fouling of the lines. Correspondingly lower solution temperatures are required for lower polyethylene resin concentrations. Other solvents can be used, such as carbon tetrachloride, xylene or trichlorethane. Each system will have its own solution temperature phase characteristic. Removal of the solvent is accomplished by drying at 120 to 150 deg. C., producing a surface film of optimum properties.

Using reverse roll coaters and spreader knives, coatings can be applied to paper giving good coverage, i.e., 15 pounds per 3000 square feet-ream producing a 1 mil coating.

The polyethylene coatings will show the usual excellent water and gas permeability characteristics and will readily lend themselves to bonding by the heat sealing methods.

Hot melts make use of low molecular weight polyethylene resin, i.e., 12,000 (DXL-12) for which there is no need of solvent, since this material can be applied to paper by means of a hot doctor knife at 310 deg. F.

The low molecular weight polyethylene resin, 12,000 (DYLT, DXL-12) is of particular interest as a wax additive to up-grade paraffin wax, increasing the toughness of the paper coated film and producing a less tacky coating which is thereby less sensitive to blocking. It is usually desirable to incorporate anti-oxidants with the polyethylene resins when using them as hot melts, as is commonly done with the paraffin waxes to inhibit oxidation at the elevated temperatures.

Flame spraying of polyethylene resins is used to lay down a protective coating on metal and concrete surfaces. A 50 to 80 mesh or finer granulation is required to produce a smooth dense surface at maximum efficiency. The best adherence is obtained from a clean sand blasted surface. An oxy-acetylene or propane gun system is used which will lay down a 1/32" coating at a rate of 25 square feet per hour at a consumption of 4 to 6 pounds of polyethylene per hour. Equipment developments which would have greater capacities are recognized as a fundamental need in this industry. The preferred polyethylene resins for flame spraying are of medium to high molecular weight (DXM-20, DXM-22, DXH-27).

The greater toughness and higher viscosities of the medium and higher molecular weight polyethylene resins result in a more satisfactory bond to the metal. This eliminates the need for modifiers to improve the adhesion of low molecular weight resins, such as have been used in the past. The presence of modifying material admixed in the polyethylene resins invariably impairs the excellent physical and chemical properties of the straight polyethylene resin coating.

Extrusion: The use of polyethylene as an extrusion compound in the wire and cable industry is well known. The low power loss, the low dielectric constant along with the high dielectric strength and high resistivity are important properties of this resin.

Multiple extrusion of polyethylene colors for decorative effects can be readily accomplished using two or more auxiliary feeding units as may be desired. The excellent heat sealing characteristics of polyethylene insures an adequate bonding of the several plastic flow streams.

Tubular extrusion has given products ranging from surgical tubing to industrial pipe of 3 to 4 inch diameters with ¼ to ⅜ inch wall, as well as rod stock of conventional sizes.

The production of transparent sheeting and tubing ranging from 1 mil to 5 mil in thickness has probably been one of the most significant extrusion developments since 1945. Tubular stock having a flat width of 36 inches, which when slit results in a 72 inch sheet, is available. However, the average sheeting is about 40" wide. Smaller tubular sizes are also quite common for packaging of almost anything and everything to the ingenious use of tubing as a disposable nursing bottle.

Normally die openings of .010 inch are used with a hot draw at the die exit to the desired size, such as 1 to 2 mil sheet thickness. For thin wall tubing, controlled air pressures of ½ to 2 pounds per square inch pressure are usually satisfactory. Die design requires uniform distribution of material from the head of the unit to maintain acceptable film thickness tolerances.

For maximum clarity and superior low temperature flex properties, polyethylene should be shock cooled to avoid the relatively high degree of crystallinity which will commonly occur by normal air annealing. This condition applies equally as well to larger wall thicknesses and thin film. For very critical low temperature flexural or strength properties, special polyethylene compounds based upon medium and high molecular weight resin are preferred.

By the fundamental properties of polyethylene as a packaging film, its future seems to be tremendous. It is a transparent film, offering excellent protection against moisture and untold number of solvents and corrosive chemicals. It has a soft, warm and friendly feel. This should be an important factor in stimulating customer interest in the product associated with it at the "point of sale". In addition, polyethylene film is not just another wrapping material but becomes a valuable premium to the consumer because of its serviceability for many household matters, either when used for protective storage and packaging or for hobby and decorative enjoyment.

The economics of the situation are also very interesting to the manufacturer and package designer. One pound of a 1 mil polyethylene film will cover 30,000 square inches or, considering the present gauge used, 1½ mils will cover 22,500 square inches. The present market for transparent packaging film has been estimated at 265,000,000 pounds per year. There should be no doubt that transparent packaging film serves an important part in the merchandising of consumer items.

A development which has been in progress for several years has been the extrusion of polyethylene monofilaments having an average diameter of 11 mils. The interest in this type of product results from the significant property that a large increase in tensile strength is brought about by the cold drawing of polyethylene monofilaments. For example, unoriented polyethylene has a unit strength of 2,500 p.s.i. (DYNH), which after being oriented by cold drawing increases to 23,000 p.s.i. Higher molecular weight resin can be extruded and oriented to a tensile strength of 34,000 p.s.i. (DXH-28).

If the oriented monofilament is subjected to elevated temperatures, a high percentage of recovery will result. It is therefore, desirable to anneal or "set" the oriented monofilament. This operation is usually done continuously with the cold drawing or orientation operation at the time of extrusion. One stage annealing will leave an average shrinkage of 7 to 9 percent at 150 dg. F. water immersion. Two stage annealing will reduce the average shrinkage to 1.5 to 2 percent at 150 deg. F. and 3 to 4 percent at 165 deg. F. The second stage can be introduced after the fabric has been made, using a tentering frame.

Progress has also been made with polyethylene multifilaments, and with a better supply situation, polyethylene resins in the textile field will establish their own significant position.

Laminating: The laminating of polyethylene resin sheets to other sheet materials depends upon mechanical reinforcement which is fundamentally an imbedding of the core material in a fused sheet of polyethylene. Thus, laminations of polyethylene resins to a web offers no great problem. Tem- pressures of 300 to 700 p.s.i. and cooling to 100 to 130 deg. F. will result in a mirror reproduction of the finish of the press platens. A high mirror gloss or embossed reproduction can be produced. As might be expected, polyethylene can be laminated to itself as effectively as it can be heat sealed.

The commercially available polyethylene resins, as the supply and demand allows, are the medium molecular weight resins (DYNF, DYNH, DYNJ) ranging from 19,000 to 22,-

000. They are produced in natural and a diversified range of translucent and opaque colors. For film extrusion use, specially compounded materials are recommended. For wire and cable use, specially compounded materials are also recommended.

Polyethylene resins of the low molecular weight classification, such as are used for hot melts and paper coatings are produced in commercial quantities, but on a more restricted scale. Market demand will expectedly establish the proper supply position.

High molecular weight resins are available in development quantities and as such should not necessarily be ignored.

The polyethylene resins are characterized as follows:

(1) low specific gravity —0.92; (2) unusual toughness over a broad temperature range, as low as —70 deg. F. to 180 deg. F.; (3) exceptional chemical and water resistance; (4) unique gas transmission, low in water vapor —high in carbon dioxide, oxygen and nitrogen; (5) excellent electrical properties over a broad frequency range; (6) odorless, tasteless, non-toxic; (7) natural color, translucent white; (8) overall ease of handling, especially by using molding and extrusion techniques.

In general, the mechanical properties are related to the molecular structure and chain length of the polymers. With increasing molecular weight, the following comments are in order: (a) tensile strength increases to a maximum of 3000 p.s.i.; (b) cutting and abrasion resistance increases; (c) form stability at boiling water temperature increases and yield strength increases as would be expected, and (d) chemical resistance of high molecular weight resins is superior to that of low molecular weight resins by comparison, but all classes of polyethylene resins are considered excellent.

Estimates of Bark Supply in the Northeast

JAMES C. RETTIE
and
FRED C. SIMMONS
Northeastern Forest Experiment Station

The fact that there is bark on every living tree that grows in the Northeastern States, bark on every saw log and pulpwood bolt that is cut, bark on fuelwood, bark on fence posts—bark everywhere, does not mean that it can be economically utilized. Much of the bark now in existance has practically no economic value.

This is a conference on the utilization of bark. We have been invited to open the discussion with a brief survey of the bark availability situation in the Northeastern States. We are talking about the availability of bark as an industrial raw material—meaning bark that is available at a price competitive with other materials that can be used for the same purposes. Bark high in tannin content, or in some other chemical substance, can sometimes bear the cost of hand peeling in the woods and of expensive transportation to bring it out to highway, railroad or boat. Insofar as we know, however, there is no appreciable quantity of Northeastern bark that falls in this classification. The bark that concerns us is that which is available as a by-product in the production of some other product such as wood pulp or lumber. We are not at present interested in the large quantity of bark that is left in the woods on logging slash. Such bark is not of much immediate economic importance.

For practical purposes, we have two sources of bark in quantities that merit attention. The more important source is the pulp mills, where a considerable tonnage of bark is removed from the pulpwood prior to processing. The other source is the sawmills, where bark-covered slabs constitute a troublesome disposal problem.

Presented to Northeastern Wood Utilization Council Bark Conference and published in Bulletin 25 "The Chemistry and Utilization of Bark."

Bark from Pulpmills

It is possible to work out a rough estimate of the tonnage of bark (dry basis) that was removed from wood at the pulp mills in 1946. The Census Bureau reports[1] on paper and paperboard production at Northeastern mills show pulpwood receipts of approximately 3,650,000 cords (rough basis). Of this total, 2,500,000 cords were domestic wood and 1,150,000 cords were imported.

The species distribution of this pulpwood is not reported by the Census Bureau but it was reported, as of 1944, to the War Production Board. There was, undoubtedly, some change between 1944 and 1946, but probably not enough to make any appreciable difference in the final estimate that we are now concerned with. Applying the 1944 percentage distribution to the 1946 pulpwood receipts, we get the breakdown shown in Table I.

Nearly half of the spruce and fir was imported from Canada. As a general rule, considerably more than half of the Canadian wood is peeled before it reaches our mills. On the other hand, considerably more than half of the domestic wood reaches the mills with the bark on. It is probable that at least 50 percent of all spruce, fir and hemlock is now being debarked at the mills. On this basis, the estimate for 1946 is approximately 1,200,000 cords.

[1] Wood Pulp, Paper and Board—1946, Bureau of the Census, Washington, D. C., 1947.

Table I
Pulpwood receipts for 1946 in Northeastern Mills

Species	Percent	Thousand cords
Spruce and fir	60	2,190
Hemlock	5	183
Pine	8	292
All softwoods	73	2,665
Aspen	13	475
Other hardwoods	14	510
All hardwoods	27	985
Total	100	3,650

Practically all of the pine pulpwood reaches the mills in rough condition. Some is processed without removal of the bark. It is probable that about 250,000 cords were debarked at the mills.

An estimate of the hardwood bark removed at the mills must be somewhat more tentative. Almost half of it was aspen and a high proportion of this, undoubtedly, was peeled Canadian wood. Some of the soda mills in the region are pulping hardwood without removal of the bark. Taking these two factors into account, it seems probable that not more than 300,000 cords of hardwood pulpwood were debarked at the mills.

These analyses lead to the conclusion that the total volume of pulpwood debarked at the mills was probably about 1,750,000 cords, or almost half of the total volume consumed. It may have been substantially more than this.

The Technical Association of the Pulp and Paper Industry, some years ago, had a technical subcommittee on the utilization of bark. The report

of this subcommittee[2] indicates that an average cord of spruce pulpwood contains about 282 pounds (dry basis) of bark. The corresponding weight for hemlock bark is 164 pounds per cord of wood. It is obvious from these data that there is a wide variation in the amount of bark per cord. A reasonably good "average figure" that is usable for present converting purposes might be 225 pounds per cord.

On such a basis, the estimated total amount of bark removed from pulpwood at Northeastern mills in 1946 is about 200,000 (dry basis) tons. A mill utilizing 200 cords of wood per day and debarking half of it, would have a bark output of from 11 to 12 tons per day, or about 3,000 tons per year.

The fact that these comparatively large quantities of bark are separated from the wood at pulp mills does not mean that such bark can be had for the asking. The bulk of this pulp-mill bark is being used as fuel to produce steam for use in the mill. The bark is thus used as a substitute for coal, and when so used it has a specific economic value depending, primarily, upon its moisture content at the time that it is placed in the boiler furnaces.

Most of the mechanical debarking equipment used at the mills involves the use of generous amounts of water to aid in loosening the bark from the wood and to wash the wood clean of bark particles. The wet bark that comes from these machines is very often in a condition similar to a wet sponge—containing as much as 4 or 5 pounds of water to every pound of bark. In other words, one pound of the wet material may contain 12.8 ounces water and 3.2 ounces of bark. The wet material in this condition is said to have a moisture content of 80 percent. When the water content reaches a point somewhere between 80 and 90 percent, the net fuel value of the material reaches zero. The thermal units of heat required to drive out the water by evaporation are in excess of the thermal units that can be liberated by the combustion of the bark fraction in the wet material.

This relationship of net fuel value of bark to its moisture content was shown graphically in the report of the TAPPI subcommittee on bark utilization. Their curve of net heating values is shown in Figure 1.

The optimum net heating value of 8,220 B.T.U.'s per pound is a theoretical value based on the Dulong formula. Actually the coniferous barks may have a net fuel value (dry basis) that is somewhat higher. The committee's figure is a conservative one that would compensate for a moderate amount of decay and other factors. The regression of the net fuel value and moisture content curve is based on

[2] John D. Rue and E. P. Gleason, "Utilization of Pulpwood Bark for Fuel," Technical Association Papers, Series VII No. 1, June, 1924.

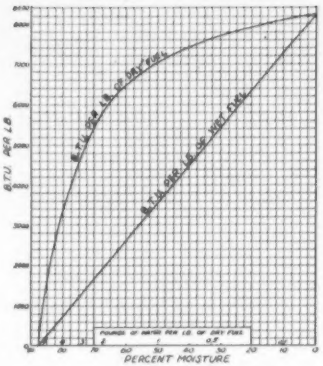


Figure 1. Available heating values of wood or refuse of various moisture contents—based on 8220 B.T.U. per lb. dry wood or bark and 1220 B.T.U. required to raise each lb. of water from 60°F. to 420°F.

a water-evaporation requirement of 1,220 B.T.U.'s per pound—the amount of heat required to raise one pound of water from 60° to 420° F., the approximate temperature of the water vapor as it goes off in the stack gases. For every unit of water that must be evaporated, the net fuel value of the wet material falls proportionally.

There are several methods for keeping down or reducing the moisture content of bark, so that it can be used as a fuel. One method being used in at least two Northeastern pulpmills, is dry debarking of the pulpwood. In both cases this is being done with drum barkers, and on wood which has been stored on dry land. The capacity of the barking equipment is reduced by 50 to 65 percent of what it would be with watersoaked wood. It is impossible to bark at all by this method in the wintertime when the wood is in a frozen condition. Bark removed dry does make a good fuel without further treatment. Another method is to run the bark through a chamber heated by waste stack gases, and thus evaporate part of the moisture. The is in use at two or three mills. The third method, and the one used most extensively, is to press the excess moisture from the bark. Two types of presses are used: one running the wet bark through pressure rollers, and the other using a plunger-type piston. Neither of these machines, in the models available to date, has been entirely satisfactory. Results in reduction of moisture content have been somewhat disappointing and excessive amounts of maintenance have been necessary. Improved models are now being developed by several manufacturers. Several more efficient dry debarkers are also in process of development.

The aim in all three of these methods is to supply material to the combustion chambers with a moisture content of about 60 percent—that is, with each pound of bark holding 1½ pounds of water. The better grades of coal have a fuel value of about 13,500 B.T.U.'s and are currently selling F.O.B. New England points at about $12 per ton. On this basis, the net fuel value of 60 percent moisture content bark used for steam production at the mill is about 47 percent of the value of coal, or $5.64 per ton. Corresponding values for bark at other moisture contents are shown in Table II. All of the data are derived from the findings of the TAPPI subcommittee on the utilization of bark.

Table II
Net heating values of bark according to moisture content:

	Net heating value		
% Moisture[1]	% of dryhark	BTU/lb.[2]	Dollars/ton[3]
10	98	8,086	$7.20
20	96	7,915	7.08
30	94	7,695	6.84
40	90	7,415	6.60
50	85	7,000	6.24
60	78	6,390	5.64
70	65	5,377	4.80
80	41	3,340	3.00
87	1	58	.05

[1] These percentage figures represent the weight of water in the moist material. A quantity of bark that weighed 1 pound when dry would weigh 2 pounds at 50 percent moisture content and 5 pounds at 80 percent moisture content.

[2] This is the thermal value of 1 pound of dry bark when saturated with the indicated percentage of moisture, assuming a thermal value of 8,220 B.t.u.'s per pound for dry bark and a water evaporation requirement of 1,220 B.t.u.'s per pound.

[3] This value is based on coal with a thermal value of 13,500 B.t.u.'s per pound at a price of $12 per ton.

Source: Same as reference[2] above.

The decline in net fuel value with the increase of moisture content is quite moderate until moisture content increases above 50 percent. This relationship is indicated by the following tabulation which shows the percentage decline in net thermal value with the increase of moisture content.

Since the moisture content can be reduced to 60 percent, relatively inexpensively, to give a net fuel value that is 78 percent of dry bark, it is easy to see why so few mills have been interested in trying to reduce the moisture content still further. Reduction below 60 percent is much more expensive and time consuming and gain in fuel value does not compensate for the costs of drying.

Our analysis of the pulp-mill bark situation leads to the conclusion that bark (even at 60 percent moisture content) is not likely to be available at a price below $5.00 per (dry basis) ton in any area where coal is priced around $12 per ton. Bark of a lower moisture content would have to com-

mand a still higher price. In Pennsylvania and in other areas nearer to the coal mines, the fuel value of bark (at 60 percent moisture content) in competition with coal may be nearer $2 to $3 per ton.

Bark from Sawmills

Turning now to the bark that is available on sawmill slabs, we are compelled to rely on the lumber production figures as the basis for an estimate of bark volume.

The bark content of sawlogs varies greatly according to species and size of tree. A very rough average that will have to serve as a converting factor is 500 pounds (dry basis) of bark per 1,000 board feet of lumber. On this basis, the estimated quantity of sawmill slab bark in 1945 is shown in Table III.

Table III
Slab and edging bark—Northeastern Sawmills—1945

	Lumber production Thousand board feet	Slab bark Tons, dry basis
New England	966,708	242,000
Middle Atlantic States[2]	1,392,923	348,000
Total Northeast	2,359,631	590,000

[1] Based on a converting factor of 500 pounds (dry basis) of bark per 1,000 board feet of lumber.
[2] Includes West Virginia.
Source: Bureau of the Census.

The total is apparently close to 600,000 tons, or 3 times the quantity removed from pulpwood at the pulpmills.

The species distribution of this slab bark can be indicated roughly by the species distribution of the lumber.

Table IV
Species Distribution of Bark

Species	Percent of total*
White pine	43
Hemlock	13
Southern yellow pine	4
Spruce	4
Other softwoods	1
All softwoods	65
Red oak	9
Hard maple	7
Beech	4
White oak	4
Ash	2
Yellow birch	2
Other birch	2
Soft maple	2
Yellow poplar	1
Other hardwoods	2
All hardwoods	35
Total	100

* Based on a Forest Service estimate of the species composition of lumber produced.

There is, apparently, about 75 to 80 thousand tons of hemlock bark; about 50 thousand tons of red oak bark, 50 thousand tons of hard maple bark, and smaller quantities of the other hardwoods. The *large* quantity is white pine, about 250 thousand tons.

If this bark was available in large concentrations, it could certainly be put to some economic use other than for fuel. The great difficulty, however, is that it is widely scattered at small mills—some permanently located but many that stay at one setting for a few months. Mills cutting 1 million board feet of lumber per year produce about 250 tons (dry basis) of bark per year, or about 1 ton per operating day. Two-thirds of all lumber sawed in the Northeast is cut by mills of this size and smaller. Any industrial plant utilizing more than 250 tons of bark per year would have to associate itself with one of the few larger sawmills or transport the bark from a number of small sawmills. When this is undertaken, the cost of the raw material begins to mount rapidly. There are only four sawmills in the region that produce more than 750 tons (dry basis) of slab bark per year.

Bark from Other Industries

Other Northeastern industries produce smaller quantities of bark in similar forms. In the aggregate they are not so important as the pulp or sawmills, but locally they may be even more important. Bark from veneer mills is usually wet, in much the same form as that from pulp mills, and is ordinarily fed to the boilers. Bark from pole and post and mine prop treating plans is sometimes removed dry without the aid of water. It is usually burned also, but offers a promising source of raw material in some localities. Bark from wood turneries and box plants is attached to slabs and edgings like that from sawmills.

Recent Developments in Bark Removal

This analysis has probably been carried far enough to make clear that there are some very tough economic problems to be overcome before bark can be used in large quantities as an industrial raw material. Physically, about 800 thousand tons of bark per year is to be had at the pulpmills and sawmills of the region, but much of this volume is at widely scattered small plants, and most of it is in a form which is difficult to convert to useful products.

On the other hand some developments are taking place that make the outlook for bark for industrial use brighter than it has been in the past. One is the general drift of sawmills from steam to electric or diesel power. This makes larger quantities of slabs and edgings available for other uses. With closer sawing, a larger percentage of slabs and edgings is bark. A Forest Service officer, in Virginia, the late Ben Lucas, recognized this, and induced a tannin extract plant to try chipping oak slabs and edgings for use in their tannin leach vats. The trial as a replacement for the fast disappearing chestnut wood was so successful that it is now being actively promoted by the Tennessee Valley Authority. The problem of collecting the slabs from small and widely scattered sawmills remains. One company in Pennsylvania has attempted to solve this by developing slab buggies that are spotted alongside the lumber rolls at a number of sawmills in its neighborhood. At regular intervals, depending on the production of the mill, a truck specially equipped with a trackbed loading ramp, and a winch to self-load these buggies, visits each mill, spots an empty and picks up the full buggy. Collection costs by this method, drawing from 19 mills within a twenty mile radius, are currently running at $1.25 a cord. Other developments are log and slab barkers. One large sawmill in Virginia has installed the Orrmell log barker, developed in Sweden, to debark its entire daily requirement of 150 thousand board feet of sawlogs. The barker is run dry. Sawing of the debarked logs is more efficient, and the slabs and edgings are acceptable raw material for a pulpmill. The bark is currently being burned. This installation cost about $35,000 and hence is only feasible for a relatively large mill. Another pulpmill has been experimenting with a hydraulic slab barker, but this has not been too successful, due to difficulties with the conveyor system and excessive wood loss. Several sawmills are debarking slabs for sale as pulpwood, either by hand or with small manually-operated slab cleaners of the buzzer type.

Another possibility is the separation of the bark from the wod, after it has been chipped, by use of air jets, agitated screens or a combination of both. This is being tried in a number of places, most successfuly by a Massachusetts box concern which is reducing bark content of its slab and edging chips from 30 percent to about 5 percent. Flotation in water or other liquids is also being tried.

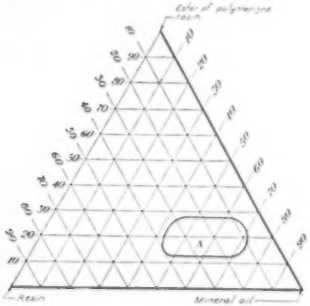
The aim in most of these cases is to obtain bark-free wood for pulp, wood flour, or other uses, but the result is to make relatively wood-free bark available also. Such bark is almost never available for a low cost. Either it is so wet that a considerable expenditure would be necessary to dry it for use, or it has a real value as a fuel. For large-scale use, considerable collection cost would be involved. The chemists and physicists will have to find some *real* values in it before it can be utilized extensively.

Patent Abstracts

● ***In addition to abstracts on the technology of pulp, paper and related industries, miscellaneous abstracts which may provide useful information to our readers are included herein.***

2,451,792—Hot-Melt coating composition. Arthur E. Young and Kenneth D. Bacon, Midland, Mich., assignors to The Dow Chemical Co., Midland, Mich.

A wax-free hot-melt coating composition consisting essentially of from 18 to 22 per cent by weight of an ethyl cellulose having an ethoxyl content of from 47.5 to 50 per cent and a vis-



Composition: 20% Ethyl cellulose, 80% "A"

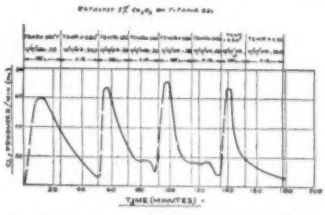
cosity less than 30 centipoises, as determined in a 5 per cent solution thereof, by weight, in an 80:20 mixture, by volume, of toluene and ethanol, the balance of the composition, correspondingly from 82 to 78 per cent of the whole, being a ternary mixture of: at least 42.5 per cent and not over 72.5 per cent of a refined pale mineral oil having a viscosity of 40 to 100 Saybolt units at 210° F.; at least 12.5 per cent and not over 27.5 per cent of an ester of polymerized rosin with a polyhydric alcohol from the group consisting of ethylene glycol, diethylene glycol, and triethylene glycol; and, at least 7.5 per cent and not over 40 per cent of a maleic anhydride-modified ester gum having a melting point in the range from 115° to 120° C., the proportions of the oil, rosin ester and modified ester gum in said ternary composition being defined by any point falling within the area A on the accompanying drawing.

2,451,826—Process for making chlorine dioxide. John F. Haller, Niagara Falls, N. Y., assignor to Mathieson Chemical Corp., a corporation of Virginia.

In the generation of chlorine dioxide, the improvement which comprises reacting dry nitrogen peroxide with a solution of chloric acid in aqueous nitric acid containing not less than 35% by weight HNO_3 on the total of water and nitric acid.

2,451,870—Chlorine Manufacturers. Roger W. Richardson and Jerry A. Pierce, Baton Rouge, La., assignors to Standard Oil Development Co., a corporation of Delaware.

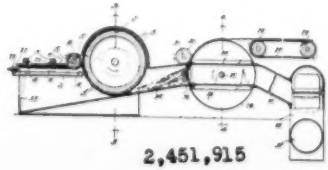
A continuous process for the preparation of chlorine directly from hydrogen chloride without any intermediate formation of chlorides on the catalyst, which consists in passing hydrogen



chloride gas at a rate between 20 and 60 volumes of gas per volume of catalyst per hour over a catalyst mass pre-heated between 2 and 18 hours in an oxygen-containing gas to a temperature between about 500° F. and 850° F., said catalyst mass containing chromium sesquioxide supported on titania gel, the hydrogen chloride gas being contacted with the catalyst mass, at a temperature from about 650° F. to about 850° F. until the rate of production of chlorine rapidly decreases as the catalyst mass becomes spent, then disconnecting the hydrogen chloride supply, then passing air at a rate between 20 and 40 volumes of gas per volume of catalyst per hour over the spent mass for a period of time about the same as that during which the hydrogen chloride was passed over the initial mass, and at a temperature between about 800° F. and about 900° F., disconnecting the air supply and repeating the cycle of passing the hydrogen chloride over the mass and the subsequent passing of air over the spent mass.

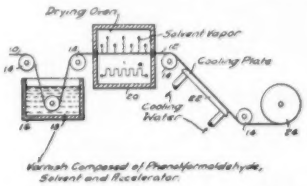
2,451,915—Machine and method for forming fiber webs. Francis M. Buresh, Blandford, Mass., assignor of one-half to George F. Buresh, Cedar Rapids, Iowa.

A machine of the kind described, comprising a lap support for unorganized fibrous material, a licker-in roll next to the support for licker-in action on said material, a rotary foraminous condenser spaced from the said roll, a tunnel for receiving the material subsequent to the licker-in action by the roll and having a continuation extending diametrically through the said condenser, and means for creating high suction action in the tunnel in the direction of and through said condenser for drawing the fibres at random and collecting them on the condenser.



2,452,005—Method of coating with synthetic resin containing an accelerator, and resin composition. William C. Weltman, Wilkinsburg, Pa., and Thomas F. Dixon, Pasadena, Calif., assignors to Westinghouse Electric Corp., East Pittsburgh, Pa.

A resin composition, comprising in combination, an A-stage partially reacted solvent soluble phenol-aldehyde thermosetting resin derived by

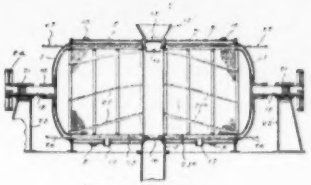


reacting a phenol from the group consisting of phenol, cresols, and cresylic acid with an aldehyde from the group consisting of formaldehyde and its polymers, from 0.1% to 2% of the weight of the resin of an accelerator to expedite gelation of the resin when subjected to heating to a condition short of the final infusible state, the accelerator having been added after the resin has been partially reacted to the A-stage, the accelerator being selected from the group composed of primary saturated aliphatic amines having no other reactive groups than the amine groups, having nitrogen attached to a methylene group and having less than 5 carbon atoms per amino group, the primary organic amines having a boiling point above 50° C., and a solvent for the resin and accelerator.

In a process for applying a partially reacted A-stage thermosetting phenolic resin derived by reacting a phenol from the group consisting of phenol, cresols, and cresylic acid with an aldehyde from the group consisting of formaldehyde and its polymers in solution in a volatile solvent to fibrous material, the steps comprising incorporating in the solution of the A-stage phenolic resin from 0.1% to 2% of the weight of the resin of a primary saturated aliphatic organic amine having nitrogen attached to a methylene group, the organic amine having no other reactive group than the amine group, the organic amine having a boiling point above 50° C. and not more than five aliphatic carbon atoms per primary amino group, applying the solution of phenolic resin to the fibrous material and subjecting the treated fibrous material to heat in order to remove the solvent and to further polymerize the phenolic resin to a condition short of the final infusible state, the organic amine providing for a more rapid reaction as compared to the reaction without the organic amine.

2,452,134 — Dehydrator. John C. Lowe, Quakertown, Pa., assignor to Harmer R. Lutz, Sellersville, Pa.

In a dehydrating machine of the character described, the combination of an imperforate cylindrical casing having a top material inlet and a bottom material outlet intermediate the ends thereof, a pair of perforate drums rotat-

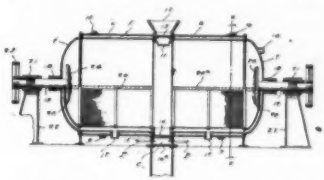


2,452,134

ably mounted in the casing in longitudinally spaced relation to each other and at opposite sides of said material inlet and said material outlet, spiral vanes on the inner surfaces of said drums, means for circulating a gaseous heating medium through the drums and casing, said drums being open at their adjacent ends and closed at their outer ends, and means adapted for rotating said drums in opposite directions for respectively feeding the material into the drums through the adjacent open ends thereof or discharging it from the drums through the adjacent open ends thereof.

2,452,135—Paper pulp machine. John C. Lowe, Quakertown, Pa., assignor to Harmer R. Lutz, Sellersville, Pa.

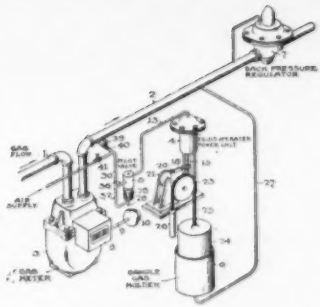
In a machine for the continuous disintegration of paper stock, the combination of a horizontal elongated cylindrical casing having a jacket adapted to have steam circulated therethrough for heating stock placed in the casing and pro-



vided with a top stock inlet and a bottom valve-controlled trash outlet intermediate its ends, means to introduce treating liquid within the upper portion of the casing, a pair of stationary perforate screening trays mounted in the lower portion of the casing in longitudinally spaced relation to each other and at opposite sides of the trash outlet, said screening trays being open at their adjacent ends, said casing further having bottom pulp outlets beneath the screening trays and at opposite sides of the trash outlet, horizontal alined shafts journaled in and centrally of the opposite ends of the casing, stock circulating and disintegrating heads secured on the inner ends of the shafts adjacent the ends of the casing and embodying discs having a plurality of concentric circular series of overlapping tangentially disposed pulping vanes on the inner faces thereof, said vanes being of narrow form laterally of the discs, and means to drive said shafts so as to rotate said heads in opposite directions to disintegrate the stock and circulate it from end to end of the casing within and above the screening trays.

2,452,143—Fluid sampling system. Joseph A. Pelleterre, Pittsburgh, Pa., assignor to Gulf Oil Corp., Pittsburgh, Pa.

A device for incrementally accumulating a composite sample of gas from a flowing stream thereof comprising a gas conduit adapted to convey a flowing stream of gas, pressure regulating means to maintain substantially uniform pres-



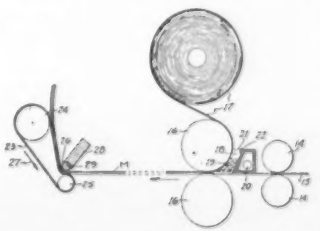
sure in said conduit, a meter interposed in said gas conduit, a gas holder to receive the desired sample, a sampling tube connecting said gas conduit and said gas holder, a power unit adapted to increase the capacity of said gas holder by a fixed increment at each actuation of the power unit, a pilot valve to supply energizing force to the said power unit and means operatively controlled by the said meter to actuate the pilot valve each time a predetermined volume of gas passes through the said meter.

2,452,200—Treatment of porous material. Hamline M. Kvalnes and Franklin S. Chance, Wilmington, Del., assignors to E. I. du Pont de Nemours & Co., Wilmington, Del.

The method of loading the voids of uncomminuted porous materials with urea-formaldehyde reaction products which comprises soaking such porous material in an aqueous reagent containing as an essential ingredient a non-resinous urea-formaldehyde reaction product having from 2.5 to 4.0 mols of formaldehyde per mol of urea, said product being characterized in that it gives N,N'-Dimethyloluron dimethyl ether upon etherification with methanol, said product being characterized further in that it has been prepared by mixing urea with 4 to 5 moles of aqueous formaldehyde per mole of urea, adjusting the pH of the mixture with alkali to from 7 to 10.5, heating the resulting mixture at a temperature of 100° to 200° F., and distilling water and excess formaldehyde from the resulting product under subatmospheric pressure.

2,452,226—Laminated product and method of manufacture. Charles N. Cone, Portland, Oreg., assignor to M and M Wood Working Co., Portland, Oreg.

The method of making a laminated material comprising uniting in interfacial relation a ply of wet wood veneer, a ply of asphalt and a ply of a fibrous cellulosic material felted together into a sheet of paper, said asphalt ply being capable of bonding itself to said plies of wood veneer and



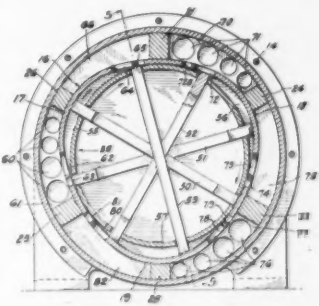
paper for holding the several plies of said material together in interfacial relation and providing a plastic base for the veneer ply, rupturing said ply of wood veneer for providing a pattern of closely spaced fissures following the grain of the wood and extending through the thickness of the veneer and constituting a multitude of expansion joints providing for contraction and expansion of the veneer ply due to subsequent changes in its moisture content, and subsequently drying said material.

2,452,338—Logging cart. Alonzo Z. Thompson, Selma, N. C.

A logging cart which includes an arched axle, supporting wheels at opposite ends of the axle, a main tongue extending forwardly from the axle, a draft tongue mounted in the main tongue to move along an axis which lies perpendicular to the axle, a drum mounted to rotate on the axle about an axis which lies perpendicular to the direction of movement of the draft tongue, a logging chain attached at opposite ends to the drum, means extending between the draft tongue and the drum to rotate the drum and wind the logging chain thereon when the draft tongue is extended under the influence of pull exerted thereon, a latch adjacent the forward end of the main tongue releasably to hold the draft tongue against movement when pull is exerted thereon and a latch adjacent the rear end of the draft tongue releasably to hold it extended.

2,452,471—Rotary vane pump. Guy A. Jones, Long Beach, Calif., assignor to Eaton Pump Manufacturing Co., Inc., a corporation of California.

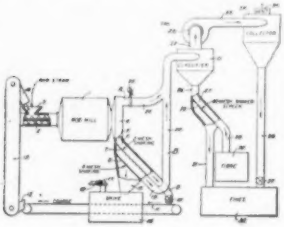
A rotary vane pump comprising a non-rotatable piston cylinder the peripheral wall of which consists of form-retaining sheet material hav-



ing outswelled peripheral portions forming piston pockets, said outswelled portions being contoured like ends of an ellipse and being circumferentially spaced apart, the spaces between them being bridged by outcurves into which they blend in a streamline manner, said outcurves being parts of circles struck from radii of greater than half the mean diameter of said piston cylinder, a hollow skeletal cylindrical rotor having its periphery contacting the inner surface of the peripheral portion of the wall of said non-rotatable cylinder between adjacent said outswells thereof, and an assembly of interlaced piston blades within said rotor and extending diametrically therethrough, said rotor having peripheral openings through which the diametrically opposite end portions of said piston blades project varying distances as they pass through said pockets to perform the pumping operation, there being inlet and outlet ports associated with said pockets.

2,452,533 — Preparation of papermaking fiber and other useful materials from straw. Sidney D. Wells, Combined Locks, Wis., assignor to The Institute of Paper Chemistry, Appleton, Wis.

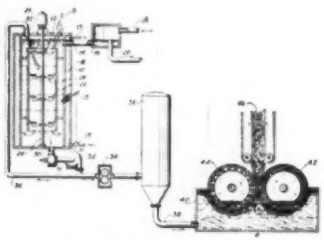
The improved method of obtaining a selected useful fiber from a flax straw which comprises the steps of fracturing the bond between the straw fiber and shive so as to produce a mixture of



relatively large particles of shive, relatively smaller and lighter particles of shive, the selected fiber in various lengths, and dust, separating the large particles of shive from the selected fiber and the other constituents of the said mixture by passing the mixture over a screen while subjecting the mixture to a counter current of air of such intensity that the large particles of shive are able to pass through the screen by gravity, whereas the fine particles of fiber, the fine shive particles, and the dust are restrained from passing through the screen, and subsequently separating the selected fiber from the material which is restrained from passing through said screen by a process which includes a second screening operation.

2,452,542—Continuous process for making alkali cellulose. William H. Bradshaw, Wilmington, Del., and William R. Schmitz, Jr., Richmond, Va., assignors to E. I. du Pont de Nemours & Co., Wilmington, Del.

In a process for the continuous production of alkali cellulose of uniform composition the steps comprising continuously feeding cellulose into a slurry-forming receptacle, said feeding being sub-



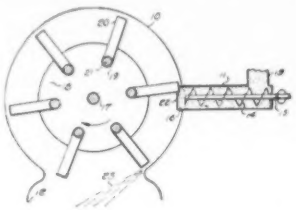
ject to unavoidable slight fluctuations in feeding rate, continuously feeding sodium hydroxide solution to said receptacle at a substantially constant rate, continuously withdrawing alkali cellulose slurry from said receptacle at a substantially constant volume rate, said withdrawn alkali cellulose slurry containing slightly fluctuating amounts of alkali cellulose as a result of fluctuations in the feed rate of cellulose, continuously removing alkali cellulose, containing a predetermined constant percentage of sodium hydroxide solution, from the alkali cellulose slurry at a substantially constant volume rate and while maintaining said slurry under superatmospheric pressure, and between the steps of withdrawing said slurry and removing alkali cellulose therefrom permitting a fluctuating increase and decrease in the volume of the slurry to compensate for the slightly fluctuating amounts of alkali cellulose in the slurry being withdrawn from said receptacle.

2,452,928—Treatment of water. Clifford A. Hampel, Harvey, Ill., assignor to Mathieson Chemical Corp., a corporation of Virginia.

In the disinfecting of water by chlorination, the improvement which comprises improving the taste and odor of the resultant water by concurrently adding to the water chlorine in amount at least sufficient to disinfect the water to render it potable and chlorine dioxide in amount such that the ratio of dissolved chlorine to dissolved chlorine dioxide is within the range of about 1:1 to about 10:1.

2,453,099 — Treatment of calcium sulfite. Harold R. Rafton, Andover, Mass., assignor to Raffold Process Corp., a corporation of Massachusetts.

In the treatment of calcium sulphite, the method of modifying said calcium sulphite to effect an improvement in at least one of the



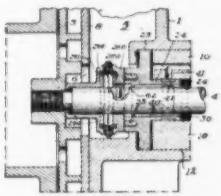
properties of adhesive requirement, oil absorption and gloss-imparting quality of said calcium sulphite, which comprises directing said calcium sulphite in association with water into the path of travel of a percussive member of a rotor element, subjecting said calcium sulphite to a percussion from said percussive member, said percussive member having a velocity of not less than 30 feet per second at the point of said percussion, said rotor element at the time of subjecting said calcium sulphite to the action of said percussive member being free from contact with said calcium sulphite except in respect to said percussive member, said calcium sulphite being free for movement upon, and at the point of, said percussion, said calcium sulphite being propelled by said percussive member away from and out of the path of travel of said percussive member.

2,453,214—Ethyl Cellulose Composition. Hans G. Figdor, Philadelphia, Pa., assignor to E. F. Houghton & Co., Philadelphia, Pa.

A thermoplastic composition comprising ethyl cellulose, mineral oil, and a resin hard and solid at room temperature and compatible with the ethyl cellulose but relatively insoluble in the mineral oil, the relative amounts by weight of the three said ingredients based on the total weight thereof being as follows: ethyl cellulose between about 15% and about 45%, mineral oil in an amount at least equal to the ethyl cellulose but not greater than about 75%, and the hard resin in an amount less than the ethyl cellulose but not less than about 2%.

2,453,249—Seal for centrifugal pumps. Daniel Murphy, New Castle, Pa.

A sealing device for a shaft comprising two collar portions arranged to be secured upon the shaft for rotation therewith and for movement relative to one another axially of the shaft, said



collar portions having substantially flat opposed surfaces adjacent their peripheries, a shaft-encompassing tubular sealing element arranged between said collar portions and in fluid-tight engagement therewith, means securing the ends of said tubular element in fluid-tight engagement with said collar portions radially inwardly of said substantially flat surfaces, and means for securing the two collar portions in juxtaposition, with the medial body portion of said sealing element bulged radially outward beyond said securing means between said substantially flat surfaces with the sealing element in engagement with the complete extent of both of said substantially flat surfaces and extending beyond the outer radial edges of the collars.

2,453,258 — Pressure-sensitive adhesive sheet. John William Pearson, St. Paul, Minn., assignor to Minnesota Mining & Manufacturing Co., St. Paul, Minn.

A pressure-sensitive adhesive sheet having a composite film backing and a pressure-sensitive eucohesive adhesive coating on one surface thereof, said composite backing comprising a preformed hydrophobic film, a preformed hydrophilic mois-

ture-permeable film, and an interposed thin film of pressure-sensitive adhesive cement which bonds the two films together and which has been deposited in situ from an aqueous dispersion thereof dried between and in contact with both films, said adhesive sheet being unwindable from rolls thereof without delamination and without offsetting of adhesive.

The method of making a clear, transparent, pressure-sensitive adhesive tape which is easily unwound from roll form without offsetting of adhesive to the outer surface of the tape backing even after long aging, which includes the steps of applying a thin uniform layer of a water dispersion of a pressure-sensitive adhesive cement between and in contact with a film of cellulose acetate and a film of regenerated cellulose, passing the combination over a smooth heated drum or roller with the cellulose acetate surface in contact therewith, and under a tension sufficient to maintain the combination web in an essentially smooth unwrinkled condition and also to exert pressure on the cement, maintaining the web in contact with the heated drum until essentially all free water is driven from the web, cooling the web, and applying a coating of a pressure-sensitive eucohesive adhesive to the outer regenerated cellulose surface of the composite web.

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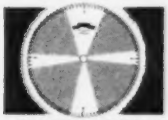

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Trends

Office of the PAPER TRADE JOURNAL,
Wednesday, April 13, 1949.

If, as had been generally expected, the NPTA Convention held last week at the Waldorf-Astoria did indicate industry trends for the immediate future, 1949 objective of the paper and paperboard industry is to equal 1948's record per capita consumption of 358.5 pounds by vigorous sales and merchandising programs without disturbing the prevailing price structure.

In view of the history of the year's first quarter, D. C. Everest, president of Marathon Corp, and key speaker of Tuesday's open session, recognized that in setting such a goal he might be considered optimistic, yet felt consumption for 1949 would be at or near the 1948 level, "depending on the ability of the U.S. and Canada physically to meet the demand."

It is precisely at this point that industry spokesmen take issue, particularly those drilled in military strategy of two major wars not to underestimate one's adversary. Since it has been accepted as fact that consumption of paper and paperboard moves in relative position to the nation's economy and that, in Mr. Everest's own phraseology, we cannot "put more water in a glass than it will hold," it is going to take unusual conditions to swing paper and board consumption volume to 1948's level at a time when consumer purchasing power is restricted either by will or by want. It must be faced that 1948's volume was that of a boom year, also that per capita consumption during 1947 and 1948 for general business, as for paper and board, was inflated by replacements of wornout clothing, durables and nondurables, also by refilling of pipelines depleted by wartime shortages. As such, they do not represent normal peacetime per capita consumption goals towards which the industry must aim.

A Salesman's Day

Uppermost there is none of the defeatist psychology which Mr. Everest challenged. Business though "spotty" with slight upswings reported here and there, is frankly described as *poor*. Setting aside the flood of economic analyses and resorting to Yankee horsesense, if purchasing power is being restricted by consumer will-power — a buyers' strike — "it is red meat for the real salesman," in the words of Ralph G. Luff, president of D. L. Ward Co., Philadelphia. On the other hand, diminished purchasing power can mean a still longer period of gradual readjustments in the nation's general economy, as in the paper and paperboard industry. Whether at the merchant level reporting on consumer demand, or at the mill purchasing level involving wood pulp and chemical suppliers, and cotton or waste paper dealers, the present situation is taken on this two-fold stand: need for aggressive and ingenious marketing, and realistic acceptance of the fact that adjustments may yet be unavoidable.

Mill Repairs

Mr. Everest's observation that existing mill equipment has been worked to the limit and is in need of proper repairs and replacements is confirmed by the number of mills which have been interrupting production for ten-day to two-week periods while this work was being done. Such shutdowns also serve as a one-piece cutback on the year's overall production, a practice which the mills appear to find to be economically more sound than moving to a shorter work week from the present seven-day-and-night schedule.

Exports

If the hurdle of dollar shortages could be taken, U.S. paper and paperboard industry might readily overcome 1948's loss of 77,000 tons. But for that same dollar shortage, the U.S. paper and paperboard industry might gain the major place of supplying increasing world needs which, by reason of its increased capacity and the diminished production of Japan and Germany, et al, should naturally accrue. And while no effort is being missed to seek out and develop new markets, the facts still exist that exports cannot continue to gain while the international currency problem is unsolved.

"The world today sorely needs a solution to her problems," said retiring President Luff. "Our interests and our very selves are so dependent upon the actions that result from world cause and effect that our thinking is strongly tempered by their influences. Therefore, four important phases of our thinking must be carefully developed and nurtured. First and pre-eminent, of course, is the phase which concerns ourselves and our lives and influences. The second phase is our government and governmental trends. We must maintain a renewed interest in government and the conduct of our country. Third consideration is our industry: paper, paper products, and their distribution. That's our business, our pride — and it should be our joy. Our constant and loyal effort must be to improve the state of our industry: improved products, mill relations, consumer acceptance, and operation superb, The fourth phase of our thinking is closely associated with the third. It has to do with our own business: our individual operations, mill and customer relations, and full acceptance of programs by all those interested in our various companies."

Inventories

Motif of the talk on "Wholesaling in a Buyers' Market," by R. S. Alexander, professor of marketing, Columbia University, was that the fundamental function of the distributor is to carry adequate inventories to represent the manufacturer's line and meet a buyers' market. The manufacturer looks to the wholesaler to carry adequate stocks of his complete line out of which he can make deliveries to the ultimate consumer, Dr. Alexander said. "From the standpoint of the retailer, he looks to the wholesaler to carry enough stock of each item so that delivery can be made of that item when he calls for it. It is this basis and elementary function of distribution which the wholesaler must be ready to perform to meet the requirements of a buyers' market."

Wood Pulp

More Swedish dealers this week brought their prices in line with new Swedish levels. Others refrained from altering prices to meet a market that is already indifferent to offers.

No further announcement is being made of second quarter Finnish prices save that they will continue to be at Canadian competitive levels, as stated by their representatives in earlier announcements in February.

Norwegian prices for bleached sulphite hold to levels previously announced for second-quarter buying, and favorable customer response to these prices is reported. ($125 on dock, no freight allowed.)

More domestic grades of unbleached sulphite moved to the $115 price with full freight allowance. Further easing of unbleached kraft is expected.

Briefly, the fever noted in the wood pulp market recently has subsided to subnormal temperature; and importers believe it is going to take more than a Spring tonic to pick up the slack in supply. Levels of current mill demand, they say gravely, can be supplied from domestic production. However, the Scandinavians will stay in the market at competitive prices.

Buying is reported to be at a minimum over current requirements, but mill demand for rush shipments is viewed as indication of low inventories on some grades.

Indexes

Index of general business activity for the week ended April 2 rose to 145.6 from 143.3 in the preceding week, compared with 143.6 in the corresponding week of 1948. Index of paperboard production dropped to 147.8 from 168.3 in the preceding week, compared with 184.6 in the corresponding week of 1948.

Comparative ratios of U. S. paper and paperboard production to mill capacity, as reported by AP&PA are:

	Apr. 2 1949	Mar. 26 1949	Apr. 3 1948	Apr. 4 1947	Apr. 5 1946
Paper**	87.4	‡87.5	100.0	106.1	104.1
Paperboard ...	75.0	80.0	98.0	102.0	99.0

** Capacity in tons: 180,061; 1948, 174,668.
‡ Revised.

Paperboard Production (Tons)

	Apr. 2 1949	Mar. 26 1949	Apr. 3 1948	Month of March
Production	149,918	170,643	186,484	808,066
New Orders.	178,967	149,388	233,919	816,737
Unfilled Orders ...	271,986	242,374	464,683	271,986

Percent of Activity, Current 75%; Year, 83%.

Short Subject on AUTOMATIC CONTROL

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The *ElectroniK* Potentiometer was designed to meet the urgent need for a new concept in precision and accuracy for automatic control. It fills that need and has set a record for outstanding performance in the Paper Industry.

In addition to such benefits as unmatched speed, greater accuracy and high reproducibility, this potentiometer provides the extra advantage of minimum maintenance.

Applications for the *ElectroniK* Controller are as varied as the need. It is particularly valuable in the measurement and control of speeds, temperatures, pH, conductivity and moisture content . . . from chip-board to coated papers.

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Imports

Week Ending April 9

NEW YORK

Newsprint

All Transport Inc., Exchester, Trieste, 236 rolls.

Paperhangings

C. A. Haynes & Co., American Flyer, London, 29 bls.

Sears Roebuck & Co., American Flyer, London, 8 bls.

Wallpaper

R. F. Downing & Co., Domfront, Havre, 3 cs.

C. A. Haynes & Co., American Veteran, Liverpool, 74 ctns.

Intramar Shipping Co., American Producer, Havre, 1 cs.

Hudson Shipping Co., American Producer, Havre, 14 pkgs.

Gummed Paper

B. F. Drakenfeld & Co., American Veteran, Liverpool, 47 cs.

Printing Paper

Olympic Shipping Co., American Producer, Havre, 21 cs.

Paper Napkins

H. W. Robinson & Co., Falstria, Copenhagen, 89 ctns.

Litho Paper

Sun Chemical Corp., Trein Maersk, Hong Kong, 10 cs.

Tissue Paper

Pongees Corp., Pioneer Wave, Kobe, 85 cs. (insulating).

Fancy Paper

T. N. Fairbanks Co., America, Southampton, 1 ble.

Coated Paper

Bluefrees N. Y. Inc., Raphael Semmes, Antwerp, 2 cs.

Drawing Paper

Winson Newton Inc., American Flyer, London, 5 cs.

H. Reeve Angel & Co., Inc., American Flyer, London, 3 cs.

Penson & Co., American Flyer, London, 1 cs.

Parchment

Gerhard & Hey, Queen Mary, Southampton, 1 cs.

Andrews Paper Co., Queen Mary, Southampton, 1 cs.

Photo Paper

Alco Photo Supply Corp., American Flyer, London, 3 cs.

Writing Paper

H. W. Robinson Co., American Flyer, London, 2 cs.

Paper Towels

H. W. Robinson Co., American Flyer, London, 1 cs.

Filter Paper

H. Reeve Angel & Co., Inc., American Flyer, London, 16 cs.

Miscellaneous Paper

E. Fougera & Co., Mormacstar, Montevideo, 10 cs.

Rags, Baggings, Etc.

H. Adlerstein, Marine Snapper, Genoa, 65 bls. jute rags.

C. Comiter, Marine Snapper, Genoa, 18 bls. cotton waste.

Ayres W. C. Jones, Lista, Rouen, 24 bls. cotton waste.

Midwest Waste Materials Co., Edam, Antwerp, 50 bls. bagging.

Chemical Bank Trust Co., Boheme, Cochin, 150 bls. old jute rags.

J. Stein, Uruguay, Buenos Aires, 6 bls. rags.

Chemical Bank Trust Co., City of Kimberley, Calcutta, 89 bls. paperstock.

A. W. Fenton Co., Cape Mohican, Rotterdam, 100 bls. jute rags.

National City Bank, Colombia, Copenhagen, 56 bls. old jute rags.

Irving Trust Co., American Veteran, Manchester, 75 bls. bagging.

Melshiors, Pioneer Wave, Shanghai, 364 bls. cotton waste.

National City Bank, Pioneer Wave, Shanghai, 99 bls. bagging.

Adler Trading Corp., Pioneer Wave, Shanghai, 100 bls. bagging.

Guaranty Trust Co., Noordam, Rotterdam, 55 bls. rags.

Glant & Co., Agwidale, Havana, 10 bls. rags.

Irving Trust Co., Exchester, Leghorn, 73 bls. paperstock.

E. J. Keller Co. Inc., Exchester, Genoa, 62 bls. gunny bagging, 69 bls. used burlaps.

Williamson Northrup Co., Mormacstar, Santos, 129 bls. cotton waste.

Chase National Bank, American Forwarder, Manchester, 94 bls. old bagging.

(———), American Forwarder, Liverpool, 35 bls. paperstock.

Old Rope

Smith & Bird, Calcutta, 124 bls. old hemp rope cuttings.

Casein

American British Chemical Supplies, Uruguay, 500 bags.

American Cyanamid Co., Uruguay, Buenos Aires, 1200 bags.

The Borden Co., Chemical Division, Uruguay, Buenos Aires, 1200 bags (ground lactic).

F. H. Paul & Stein Bros., Uruguay, Buenos Aires, 200 bags (lactic).

Hidecuttings

John Gorvers, Santos Sofia, Barranquilla, 48 rolls.

BOSTON

Empire Fiber Co., Pioneer Wave, Shanghai, 200 bls cotton waste.

PHILADELPHIA

W. J. Jones, Domfront, Havre, 40 cs. wallpaper.

Sears Roebuck Co., American Flyer, London, 255 ctns. paperhangings.

(———), Exchester, Venice, 194 bls. waste bagging.

NORFOLK

W. F. Malcolm, Manipur, Colombo, 129 bls. old jute rags.

BALTIMORE

C. Smiles, City of Kimberley, Calcutta, 80 bls. old jute rags.

W. F. Malcolm, City of Kimberley, Calcutta, 224 bls. old jute rags.

J. J. Rozendaal, Black Eagle, Antwerp, 88 bls. cotton waste.

NEWPORT NEWS

International Corp., Pioneer Wave, Shanghai, 100 bls. bagging waste.

LOS ANGELES

National City Bank, Marine Snapper, Genoa, 138 bls. old bagging.

Powell Power Puzzle

VANCOUVER, B.C. — Available power for the future is now being sought at the Powell River Co. at Powell River, B. C. It is possible that the solution may lie in the construction of a ten-mile underwater cable transmission circuit to bring power to the mainland pulp and paper town from the Campbell River development of the B. C. Power Commission. Such a cable, it is believed, would be one of the longest in the world to be used for the transmission of high-tension current. The company, it is said, has run short of electric power sources for possible development in its huge plant there.

Powell River has developed about 100,000 horsepower from its sources in Powell Lake and Lois River. The great newsprint machines, the making of pulp and other activities of the company are using every day right up to the maximum of rated capacity of the present electric generators. In the near future Powell River Co. may require up to another 30,000 to 40,000 horsepower. Several alternatives are now being considered to provide this.

The first plan, as already outlined, is to tap the resources of B. C. Power Commission's plant at Campbell River. A branch of the main high-tension wire system would be taken off at Courtenay, which is almost exactly opposite Powell River and on the west side of the Gulf of Georgia. A land line would be run to Point Laze and from there a submarine cable between ten and 11 miles in length would be laid to the northern tip of Texada Island. Another land line would cross the island, then a two-mile cable would cross Malaspina Strait to Myrtle Point on the mainland, where it would join up with the Lois River wires into Powell's own plant.

The second alternative being looked into is to get power from the B. C. Electric service at Bridge River. The transmission line would be tapped in the vicinity of Pemberton, about halfway along the route from Bridge River into Vancouver. This route would be west and southwest, altogether about 50 miles, swinging round the northern tip of Jervis Inlet and coming into the plant at the northern tip of Powell Lake. The chief disadvantage of this plan is that the line would have to cross three high mountain ranges and would be subject to interruption in winter. There is no easy valley, such as used to bring the current from Bridge River into Vancouver.

A third alternative is to erect a steam plant at Powell.

A fourth alternative would be for Powell to erect a new plant on Vancouver Island to take advantage right at the source of the cheap power provided there by the Campbell River development.

No immediate decision is expected, but according to reports current here, Powell River Co. officials are looking to large developments in the future and wish to be ready with new power connections.

Bennett, Manager

NEW TORONTO, ONT.—Arnold G. Bennett has been appointed manager of the Mono paper cup division of the Continental Can Co. of Canada.

Ecclestone Director

OTTAWA — Roy H. Ecclestone has been elected a director of the Rolland Paper Co., Ltd. Mr. Ecclestone is sales manager of the company.

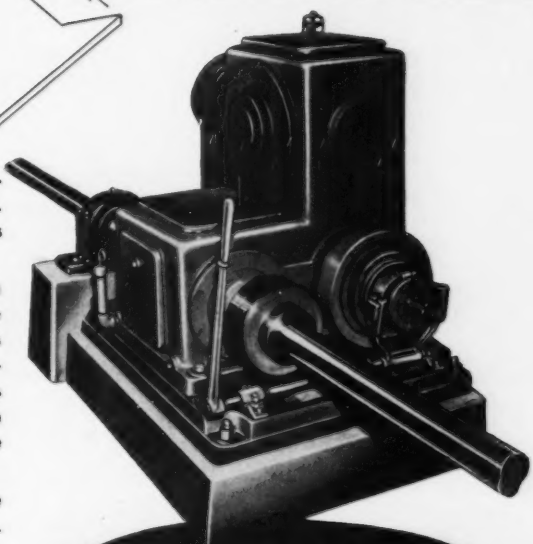
Installation of SYCO Drives has helped to increase paper output on each installation. SYCO contributes to quality control because it is smooth running . . . all the draws stay put.

The precise control mechanism of the modern SYCO Paper Machine Drive facilitates quick, close adjustment of sectional speed . . . then maintains the selected speed without departure. SYCO's interlocking synchronization holds the individual sections in precise speed ratio — preserving uniform tension on the sheet at all times. Breaks are fewer — the machine stays in production with less time out.

SYCO's exact speed control is matched by the ruggedness of its soundly engineered mechanism. SYCO is built for long trouble-free life.

The compact, self-contained modern SYCO drive requires less space, permitting clean, accessible uncluttered space around the machine.

Can the Modern SYCO Paper Machine Drive earn dividends in *your* mill? Write us for full details!



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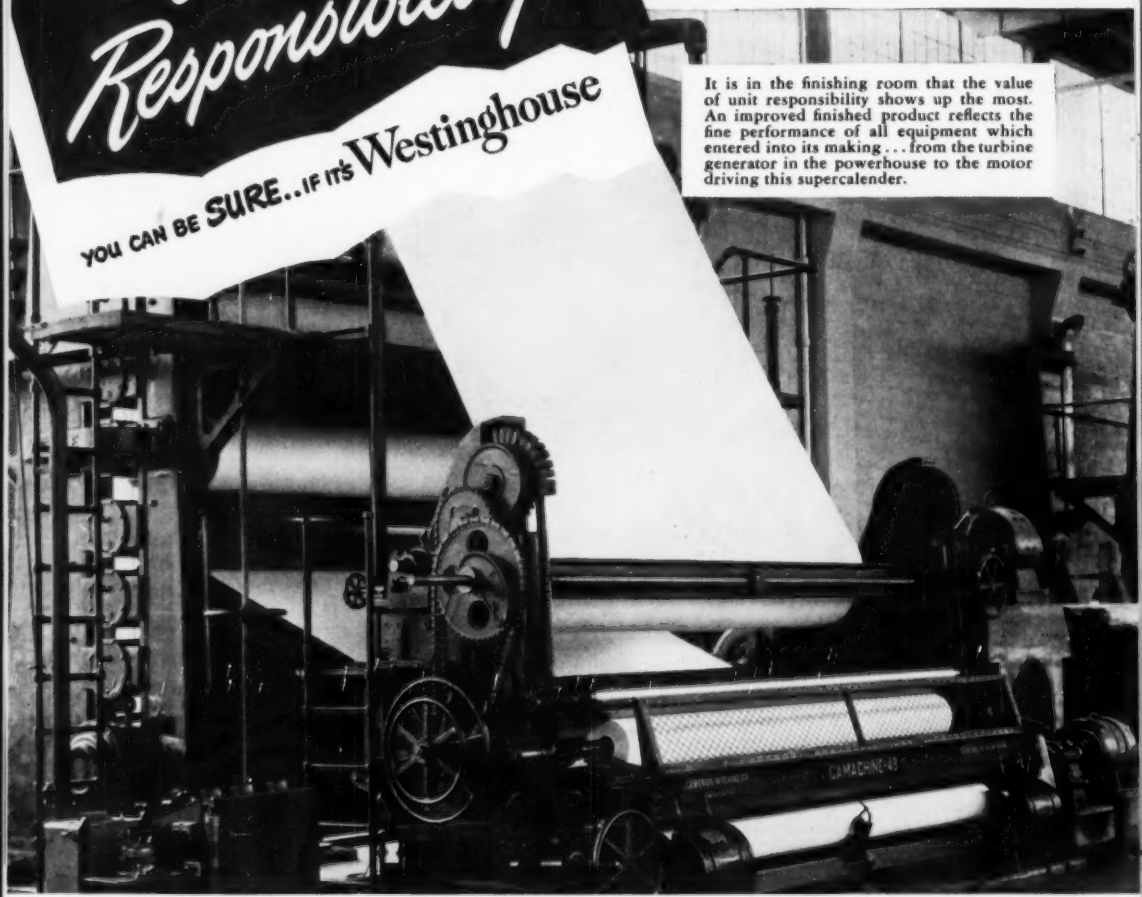
Unit Responsibility

YOU CAN BE SURE... IF IT'S Westinghouse



It is in the finishing room that the value of unit responsibility shows up the most. An improved finished product reflects the fine performance of all equipment which entered into its making . . . from the turbine generator in the powerhouse to the motor driving this supercalender.

POWER FOR PAPER-MAKING . . .

PRODUCED . . . PROTECTED . . . DELIVERED . . . *DEPENDABLY!*

Steam—and how it is used for heat and power—is a big factor in pulp and paper mill costs and in quality of output.

Westinghouse experience offers important benefits to pulp and paper mill operators in this direction. As a result of more than fifty years of experience in equipping power plants of all types, Westinghouse can carry full responsibility from selection of proper stokers and turbine generators in the powerhouse, to motors and steam auxiliaries in the finishing room.

Westinghouse "know-how" can be counted on both for dependable operation and for proper heat balance between process steam and steam for power.

Process efficiency and product quality start in the powerhouse. Westinghouse Paper Industry Engineers are ready to help you today. For details, call your local Westinghouse office or write to Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa. J-94738

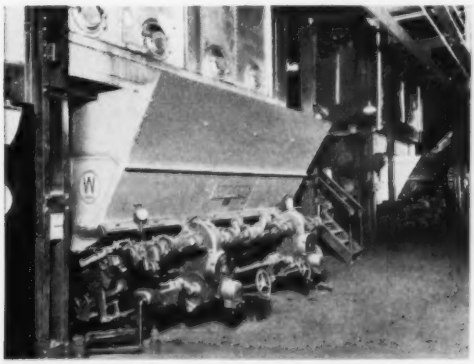
PRODUCTIVE POWER

"WESTINGHOUSE-EQUIPPED THROUGHOUT" MEANS SIMPLIFIED ORDERING, QUICKER INSTALLATION, MORE EFFICIENT OPERATION

Putting power to work *productively* can be a major problem—or a simple one. When items must be selected, ordered and received from many sources, it means many chances for costly errors and delays . . . divided responsibility—or none at all—for performance of installed equipment.

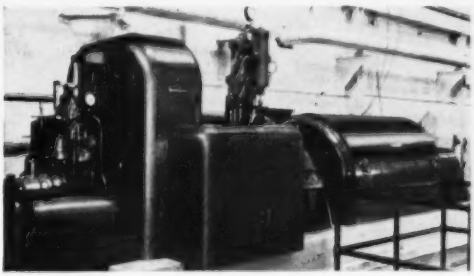
Westinghouse offers the way to simplify the job. From equipment for generation of electrical or steam power, to the most specialized types of drives and control for its utilization, Westinghouse provides a single source of supply . . . one broad pair of shoulders competent to take responsibility for performance of all parts of the job.

Here are a few of the places where Westinghouse unit responsibility prevents headaches . . . saves money . . . assures *more productive* power:

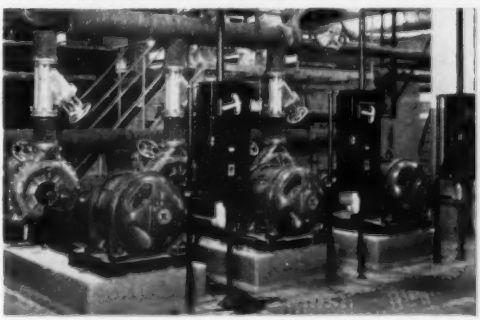


STOKERS—Ability to burn cheaper grades of fuel and to eliminate smoke nuisance are two outstanding advantages of Westinghouse "Link-Grate" Stokers. These stokers fire the boilers supplying power and process steam in a New York paper mill.

SWITCHGEAR—Westinghouse supplies a complete range of "Unitized" metal-clad switchgear that permits quick, economical installation. Unit shown contains a 750-kva, air-cooled transformer, high-voltage, metal-clad air circuit breaker, and draw-out, low-voltage air circuit breakers.



TURBINES—Constant process steam pressure and constant speed are maintained by this modern, 3,000-kw double bleeder turbine in a Wisconsin paper mill. In addition to turbines, Westinghouse supplies condensers in three types and a complete line of auxiliaries including condensate pumps, feed-water heaters, circulating pumps and steam jet air ejectors.



AUXILIARIES—Boiler room auxiliaries driven by Westinghouse motors and control assure continuity of service and give the desired flexibility of operation. Other miscellaneous equipment includes instruments, disconnecting switches, fuses and other electrical products that contribute to more efficient operation.

Westinghouse

PLANTS IN 25 CITIES . . . OFFICES EVERYWHERE

MORE PRODUCTIVE POWER FOR INDUSTRY

Prices

Quotations indicate trends in an open market. At the moment they can be of little more value. While some volume business still is done under contract at the figures shown, fluctuations are too varied and frequent to permit prices to be interpreted as representing a wholly stabilized market.

NEW YORK

Paper

Delivered New York

Standard News, per ton—

Rolls, contract	$100.00/	—
Sheets	115.00/	—

F.o.b. mill, varying freight allowances, Zone 1.

Kraft—per cwt., 40# base wgt.

No. 1 Wrapping Rolls	$7.75/	$8.00
No. 1 Wrapping Sheets	8.25/	8.50
Standard Wrapping Rolls	7.00/	—
Standard Wrapping Sheets	7.50/	—
Standard Bag	6.50/	—
Multiwall Bag, 40# and heavier, 24x36 (500 sheets)		
Southern	7.50/	7.75
Northern	8.85/	10.15

Tissues—per ream 24x36 (480) 10/11 lbs. 2500 lbs. or more

Wh. No. 1 Frd.	$1.60/	$1.70
Wh. No. 1 M. G.	1.60/	1.80
Wh. No. 1½	1.55/	—
Wh. No. 2	1.40/	1.45
Kraft Anti-Tar	1.45/	1.62
Kraft Unbl.	1.75/	—
Shrd. Wh. No. 1 per lb.	.11½/	—

Toilet—per case of 100 rolls—1 M sheets.

Unbleached 4½x4½	$6.80/	—
Unbleached 4½x5	5.85/	—
Bleached 4½x4½	7.70/	—
Bleached 4½x5	8.00/	8.80
Per Case of 50 rolls—1500 sheets		
Unbleached 4½x4½	$5.50/	—
Per Case of 50 rolls—2000 sheets		
Unbleached 4½x4½	6.70/	—
Bleached 4½x4½	7.40/	—

Paper Towels—per case of 3750—Zone 1.

Wh. Jr. M'tif'd 9½x9½	$5.45	
Br. Sr. M'tif'd 10x12	3.80	
Br. Jr. M'tif'd 9½x9¾	3.30	
Br. Jr. Sgl. fold 10x10¾	3.35	

Manila, per cwt.

No. 1 Jute Tag, sheets*	$15.05/	—
Reg. Jute M.F. Manila, sheets*	13.50/	15.50
No. 1 Manila Wrapping	8.75/	10.50
Printing Manila	10.00/	11.00

* Less usual allowance for rolls.

Boards, per ton—

Filled News	$80.00/	$82.50
Plain Chip	80.00/	—
Bkbd. Mix. Ld. Chip*	**102.50/**	**105.00**
White Pat. coated*	120.00/	
Kraft Liners 42 lb.	105.00/	
Kraft Corr. .009	110.00/	
Binders Boards	120.00/	126.00

* Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

The following prices are representative of distributors' resale prices, all deliveries in Zone 1:

Rag Content Bonds and Ledgers—

White, 20 lb.

Bonds,

	Case	
100% Rag Ex. No. 1	$51.40/	$53.90
100% Rag	44.55/	46.15
75% Rag	33.90/	35.40
50% Rag	28.10/	29.55
25% Rag	24.85/	26.80

Ledgers,

	Case	
100% Rag Ex. No. 1	$52.65/	$54.55
100% Rag	45.65/	46.40
75% Rag	35.15/	35.80
50% Rag	29.40/	30.05
25% Rag	26.15/	26.80

Sulphite Bonds and Ledgers

White, 20 lb.

Bonds,

	Case	
No. 1	$18.35/	—
No. 2	17.50/	18.80
No. 4	16.80/	17.45

Ledgers,

	Case	
No. 1	$19.65/	—
No. 2	18.80/	—
No. 4	18.10/	—

White Book,

Conversion Coated

	Case	
No. 1	$20.75/	$20.90
No. 2	19.50/	19.65
No. 3	18.15/	18.90

Machine Coated

No. 1	16.65/	17.15
No. 2	14.90/	16.50

Uncoated

No. 1 Antique (Watermarked)	16.40/	17.90
Offset	16.15/	17.15
A Grade E. F.	15.40/	—
A Grade S. C.	15.90/	16.15
B Grade E. F.	14.90/	15.15
B Grade S. C.	15.40/	15.65

Twines

All Prices Nominal, F.o.b. Mill

(Soft Fiber)

Coarse Polished—India	**.35½/**	**.36½**
Fine Polished India	**.41½/**	**.45**
Unpolished—Paper Makers	**.32¾/**	**.34½**
Tube Rope	**.33¾/**	**.35½**
Wrapping	**.36 /**	**.38¾**
Cotton	**.58 /**	**.60**
Polished Cotton	**.55 /**	**—**

(Hard Fiber)

Mex. Sisal	.21 /	.27

(American Hemp)

Polished Hemp	**.46½/**	**.48**
Unpolished	**.35 /**	**.37¾**

Rag Market

New Domestic Cotton Cuttings

(Prices to Dealers, F.o.b. Ship. Pt.)

	Per 100 lbs.	
White Shirt	$10.00/	$10.50
Unbleached Muslin	10.00/	10.50
Light Silesias	7.00/	7.50
White Back Blue Overalls	6.25/	6.50
Blue Overalls	6.00/	6.25
Fancy Shirt	4.50/	5.00
Percales	5.50/	6.00
Light Prints	5.50/	6.00
No. 1 Washables	**3.00/**	**3.25**
Bleachable Khaki	5.00/	5.50
Unbleachable Khaki	4.50/	5.00
Cottonades	4.25/	4.75
Lt. Flannelettes	7.00/	7.50
Men's Corduroy	3.50/	4.00
Women's Corduroy	3.00/	3.50

(Continued on page 36)

World Wood Pulp Markets at a Glance

Second Quarter Contract Prices, Per Short Air-Dry Ton

	Delivered, with varying freight allowances		On dock Atlantic Ports Varying freight allowances		
	U. S.	Canadian	Swedish	Finnish	Norwegian
Groundwood	$75.00/ —	$75.00/ —			
Siderums Pulping News		80.00/ 90.00			
Soda, Bleached	125.00/ —	125.00/ —		Competitive	
Sulphate, Bleached	‡132.50/136.50	136.00/140.00	§130.00/140.00		
Sulphate, Unbl'd North'n	105.00/ —	105.00/112.50	105.00/112.50	with	
Sulphate, Unbl'd South'n	95.00/ —				
Sulphite Blchd. (S'ftw'd)	126.00/130.00	130.00/135.00	130.00/132.50	Canadian	$125.00/ —
Sulphite, Blchd. (H'dw'd)	125.00/ —				
Sulphite, Unbleached	115.00/118.00	118.00/ —	§110.00/118.00	Grades	
Sulphite, Unbl'd (Glassine)	121.50/ —	125.00/ —	122.00/127.50		

‡ Southern. § Flat: no freight allowed.

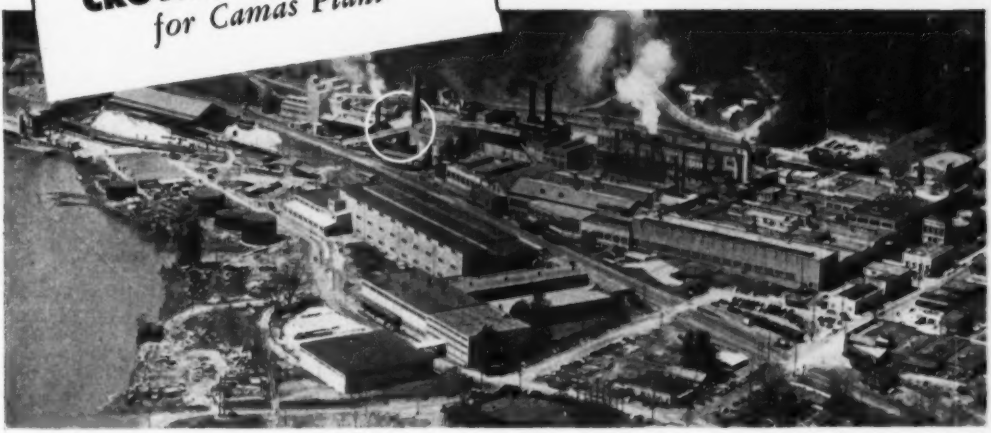
Waste Paper Market

Prices to Mills. Quotations Nominal

F.O.B. Shipping Point (Per Ton)

	New York Apr. 7	Philadelphia Apr. 4	Boston Apr. 9	Chicago Apr. 6
No. 1 Mixed Paper	$4.00/ $5.00	3.00/ 5.00	$4.00/ $6.00	$5.00/ —
Boxboard Cuts	6.00/ 7.00	3.00/ 4.00	10.00/ —	7.00/ —
Mill Wrappers	12.00/ 14.00	6.00/ 8.00	15.00/ —	7.00/ —
No. 1 News	10.00/ 11.00	6.00/ 8.00	— / 9.00	11.00/ —
Over-issue News	12.00/ 14.00	8.00/ 10.00	11.00/ 12.00	15.00/ —
Corrugated Containers	12.00/ 13.00	9.00/ 10.00	10.00/ 11.50	12.00/ —
New Corrugated Cuts	15.00/ 18.00	18.00/ 20.00	16.00/ —	15.00/ —
Double Kraft Ld. Corr. Cuts	25.00/ 30.00	25.00/ 30.00	45.00/ —	35.00/ —
Used Kraft Bags	25.00/ 30.00	14.00/ 18.00	14.00/ 18.00	20.00/ —
No. 1 Brown Kraft Paper	20.00/ 25.00	20.00/ 25.00	25.00/ —	20.00/ —
Super Resorted Br. Kraft	30.00/ 35.00	30.00/ 32.00	40.00/ 45.00	40.00/ —
New Br. Kraft Env. Cuts	60.00/ 65.00	60.00/ 65.00	70.00/ 75.00	60.00/ —
New Br. Kraft Cuts	50.00/ 55.00	45.00/ 50.00	70.00/ —	40.00/ —
No. 1 Gdwd. Shvs.	20.00/ 25.00	14.00/ 16.00	25.00/ —	23.00/ —
White Newsblanks	55.00/ 60.00	60.00/ 65.00	— / 60.00	40.00/ —
No. 1 Flyleaf Shvs.	35.00/ 40.00	18.00/ 20.00	35.00/ 40.00	35.00/ —
No. 1 Soft Wht. Shvs.	65.00/ 70.00	60.00/ 65.00	70.00/ 80.00	55.00/ —
Super Soft Wht. Shvs.	85.00/ 90.00	80.00/ 85.00	80.00/110.00	65.00/ —
Hd. Wht. Shvs.	80.00/ 85.00	70.00/ 75.00	80.00/ —	90.00/ —
Hd. Wht. Env. Cuts.	95.00/100.00	90.00/ 95.00	90.00/105.00	90.00/100.00
New Manila Env. Cuts.	60.00/ 70.00	60.00/ 65.00	60.00/ 70.00	65.00/ —
Col. Tab Cards	30.00/ 40.00	— / —	— / —	— / —
Manila Tab Cards	60.00/ 65.00	55.00/ 60.00	65.00/ 75.00	55.00/ —
No. 1 Mixed Ledger	30.00/ 32.50	20.00/ 25.00	37.50/ —	30.00/ —
White Ledger	35.00/ 40.00	30.00/ 35.00	45.00/ 50.00	35.00/ —
Mixed Books & Mags.	7.00/ 8.00	7.00/ 8.00	12.00/ —	5.00/ —
No. 1 Rep'd Hvy. Books & Mags.	15.00/ 17.00	10.00/ 12.00	22.00/ 23.00	20.00/ —

Western Precipitation COTTRELL *again selected by* CROWN-ZELLERBACH *for Camas Plant*



New Camas recovery unit one of many successful Western Precipitation paper installations...

WESTERN PRECIPITATION is the organization that—more than 30 years ago—pioneered the first successful application of COTTRELL equipment for collecting soda ash from the recovery furnaces in paper plant operations. And through the years Western Precipitation has continued its leadership in COTTRELL installations with one important development after another.

One of the latest Western Precipitation paper installations is the COTTRELL unit recently completed for Crown-Zellerbach for their kraft plant at Camas. This COTTRELL, recovering soda salts from the black liquor furnace gases, is only one of the Western Precipitation COTTRELL units chosen by Crown-Zellerbach for their paper mills.

In fact, at the Camas plant itself another Western Precipitation COTTRELL unit has been in successful operation for some 8 years, and the success of this installation was an important factor in the decision of Crown-Zellerbach to again install a Western Precipitation COTTRELL in the newly completed expansion to their Camas kraft mill operations.

Throughout the paper industry many other companies have also selected Western Precipitation COTTRELL equipment for their kraft mill recovery units, and the invaluable experience gained through the years by the Western Precipitation organization in this specialized field can be helpful to any paper plant contemplating installation of recovery equipment. Let our engineers study your particular requirements and make recommendations based on over 30 years of first-hand experience in the paper industry—more than 40 years in the design and construction of COTTRELL equipment for all types of industrial applications.

Send for descriptive literature on COTTRELL *equipment*

WESTERN Precipitation CORPORATION

ENGINEERS, DESIGNERS & MANUFACTURERS OF EQUIPMENT FOR COLLECTION OF SUSPENDED MATERIALS FROM GASES & LIQUIDS

Main Offices: 1040 WEST NINTH STREET, LOS ANGELES 15, CALIFORNIA
CHRYSLER BLDG., NEW YORK 17 • 1 LaSALLE ST. BLDG., 1 N. La SALLE ST., CHICAGO 2 • HOBART BUILDING, SAN FRANCISCO 4, CALIFORNIA
PRECIPITATION CO. OF CANADA, LTD., DOMINION SQ. BLDG., MONTREAL

Prices

CONTINUED FROM PAGE 34

Old Domestic Cotton Rags

(Prices to Dealers, F.o.b. Ship. Pt.)

	Per 100 lbs.	
No. 1 Whites, Repacked	**$4.25/**	**$4.75**
No. 1 Whites, Miscellaneous	3.50/	4.00
No. 2 Whites, Repacked	2.75/	3.00
No. 2 Whites, Miscellaneous	2.00/	2.25
Cotton Pants & Overalls	2.75/	3.00
Thirds and Blues, Repacked	2.25/	2.50
No. 1 Roofing Rags	1.40/	1.50
No. 2 Roofing Rags	1.25/	1.35
No. 3 Jute Bagging	**.95/**	**1.05**
No. 4 Brussels & brd. Bek'd crpts.	**.90/**	**1.00**
Roofing Bagging	**.80/**	**.95**

New Foreign Cotton Cuttings

(Prices to Dealer, F.o.b. Dock, N. Y.)

	Per 100 lbs.
New Dark Cuttings	
New Mixed Cuttings	
Light Silesias	prices
Light Flannelettes	
New White Cuttings	are
New Unbleached Cuttings	
Fancy Shirt Cuttings	nominal
Light Prints	
Bleachable Khaki, No. 1	
Unbl. Khaki, No. 1	

Old Foreign Rags

(Prices to Dealer, F.o.b. Dock, N. Y.)

	Per 100 lbs.
No. 1 White Cottons	
No. 2 White Cottons	
No. 3 White Cottons	
No. 4 White Cottons	prices
Extra Light Prints	
Old Light Prints	
Med. Light Prints	are
Dutch Blue Cottons	
Checks and Blues	
Linsey Garments	nominal
Dark Cottons, European	
Dark Cottons, Egyptian	
Old Shopperies	
New Shopperies	

Bagging

(Prices to Dealers, f.o.b. N. Y.)

	Per 100 lbs.	
Foreign Gunny, No. 1	**$7.50/**	**$8.00**
Domestic Gunny, No. 1	7.50/	8.00
Heavy Wool Tares	5.50/	7.00
No. 1 Scrap Bagging	4.75/	5.00
Foreign Manila Rope	5.50/	5.75
Domestic Manila Rope	5.50/	5.75
Jute Strings	6.25/	6.50
[illegible] Sisal Strings	5.00/	5.25
Mixed Strings	1.15/	1.30

PHILADELPHIA

Domestic Rags (new)

(F.o.b. Eastern Shipping Point)

	Per 100 lbs.	
White Shirt	**$10.25/**	**$10.50**
Light Silesias	6.75/	7.00
Unbleached Muslin	10.00/	10.25
Light Prints	5.25/	5.50
Washable No. 1	3.00/	3.50
Blue Overall	6.00/	6.25
Percales	5.50/	5.75
Unbleachable Khaki	4.00/	4.25
Bleachable Khaki	5.25/	5.50
Men's Corduroy	4.25/	4.50
Ladies' Corduroy	4.00/	4.25
Cottonades	4.25/	4.50
Fancy Shirts	5.25/	5.50

Domestic Rags (old)

(F.o.b. Eastern Shipping Point)

	Per 100 lbs.	
Mixed White	**$3.75/**	**$4.00**
Thirds and Blues Repacked	2.50/	2.65
Cotton Pants & Overalls	3.00/	3.25
No. 1 Roofing Stock	1.15/	1.25
No. 2 Roofing Stock	1.10/	1.15
Roofing Bagging	.85/	.90

Bagging

(F.o.b. Eastern Shipping Point)

	Per 100 lbs.	
Old Manila Rope	$5.50/	—
Foreign Gunny No. 1	8.00/	—
Domestic Gunny No. 1	8.00/	—
Sisal Strings No. 1	3.75/	—
No. 1 Scrap	5.50/	—
No. 1 Jute Rope	6.00/	6.50

BOSTON

Bagging

(F.o.b. Boston)

	Per 100 lbs.	
Foreign Gunny	7.50	/ 8.00
Domestic Gunny	8.25	/ 850.
Domestic No. 1 Old Rope	6.00	/ 6.25
Foreign No. 1 Old Rope	**6.50**	**/ —**
Mixed Strings	1.35	/ —
Transmission Rope—Domestic	**3.00**	**/ 3.50**
Jute Carpet Threads	—	/ 4.00
Bleachery Burlap	—	/ 9.00
Scrap Burlap—		
Foreign	6.25	/ 6.75
Domestic	**—**	**/ 7.75**
South America	8.25	/ 8.50
Austr. Wool Pouches	8.25	/ —
New Zealand Wool Pouches	**—**	**/ 7.80**
New Burlap Cuttings	8.50	/ —
Heavy Baling Bagging	**—**	**/ 7.50**
Paper Mill Bagging	**—**	**/ 6.75**

Domestic Rags (New)

(F.o.b. Boston)

	Per 100 lbs.	
New Light Prints	5.75	/ 6.00
Fancy Percales	6.00	/ 6.25
White No. 1 Shirt	10.25	/10.75
Light Flannelettes	**—**	**/ 7.00**
Canton Flannels, Bleached	**—**	**/ 9.00**
Underwear Cutters, Bleached	10.75	/11.00
Underwear Cutters, Unbleached	10.00	/10.25
Blue Overalls	6.25	/ 6.75
Soft Unbleached	10.00	/10.75
Blue Cheviots	6.00	/ 6.50
Fancy Shirt	5.00	/ 5.25
Washable	3.25	/ 3.50
Khaki Cuttings	5.00	/ 5.25
Men's Corduroy	**4.50**	**/ —**
Khaki Canvas	—	/ 5.50
B. V. D. Cuttings	10.00	/10.25

Domestic Rags (Old)

(F.o.b. Boston)

	Per 100 lbs.	
No. 1 Whites, Repacked	$3.50	/$4.00
No. 1 Whites, Miscellaneous	3.00	/ 3.50
Twos and Blues, Repacked	—	/ 2.00
Cotton Pants & Overalls	2.75	/ 3.00
No. 1 Roofing Stock	—	/ 1.30
No. 2 Roofing Stock	—	/ 1.20
Roofing Bagging	—	/ .90

Markets

Blanc Fixe

Supply ample. Prices firm. Currently quoted at $85.00 in bags, car lots, at works, 6 cents per pound, l.c.l., deld. By-product supply somewhat restricted. Quoted at $77.50 per ton, car lots, at works, 6 cents per pound, l.c.l., deld.

Bleaching Powder

Steady improvement in supply. Demand and prices steady. Prices range from $4.25 to $4.75 per 100 pound drums, l.c.l., works.

Casein

Domestic price declines further. Demand dull. Current prices on processed acid precipitated casein at 21 to 26 cents per pound for domestic grades and 21 to 22 cents for imported grades, f.o.b. shipping point.

Caustic Soda

Supply adequate for prompt shipment. Prices firm. Solid caustic is reported at $3.05 per cwt. flaked and ground is quoted at $3.45 per cwt., in 400 pound drums, $3.95 per cwt. in 100 pound drums—car lots at works; liquid 50 per cent in tank cars at $2.40 per cwt.; liquid 73 per cent in tank cars at $2.50 per cwt., at works.

China Clay

Demand easier, supply of domestic and imported ample. Prices firm. Domestic filler quoted at $10 to $12.50 per ton, car lots, f.o.b. mines. Coating clay is $15 to $25. Imported clay quotation, short tons, $16 to $35, export warehouse.

Chlorine

Supply condition favorable. Seasonal pickup in demand due. Demand moderately strong. Prices firm. Currently quoted at $2.40 per cwt. in single unit tank cars; at $2.70 to $3.90 per cwt. in multi-tank cars, f.o.b., works.

Rosin

Prices drop 10c more. Demand disappointingly dull. Producers protest loan level in Wash. Gum rosin in drums per 100 pounds net in car lots, f.o.b., Savannah: B, G, H, I, K, $5.60, Savannah; B, $4.25; FF, $5.65.

Rosin Size

Supply good. Demand steady. Seventy percent gum and pale wood grades, tank cars, $4.95 to $5.05 f.o.b. southern shipping point.

Salt Cake

Easing of demand and steady production brings ample supply condition. Prices steady. Domestic quoted at $27.00, f.o.b. shipping point, freight allowed to destination.

Soda Ash

In free supply. Demand easier. Prices firm. Current prices, car lots per 100 pounds; in bulk, $1.15; in paper bags, $1.40; and in barrels, $1.90.

Sodium Bicarbonate

Supply ample. Demand good. Prices firm. Reported at $1.95 per cwt. paper bags, carload lots.

Starch, Corn

Demand fair. Supply and delivery good. Pearl grade quoted at $4.67 per 100 pounds; powdered starch at $4.78 per 100 pounds; car lots, f.o.b. Chicago.

Starch, Potato

Fair paper mill demand. Maine price firmed by Govt. purchases. Supply in Maine ample. Idaho limited. High grade quoted at $4.75 cwt. f.o.b. Idaho; $5.00 f.o.b. Maine; Pearl grade, $4.90 cwt. f.o.b. Maine.

Sulphate of Alumina

Supply good. Demand steady. Prices firm. The commercial grades are quoted from $1.50 per 100 pounds, in bags, car lots, f.o.b. works. Iron free is $2.50 per 100 pounds in bags, car lots, at works.

Sulphur

Demand sustained at good level. Supply good. Prices firm. Annual contracts are quoted at $18 per long ton, f.o.b. mines; $19.50, f.o.b. vessels, Gulf ports. Export price f.o.b. Gulf ports is $22.00 per long ton.

Talc

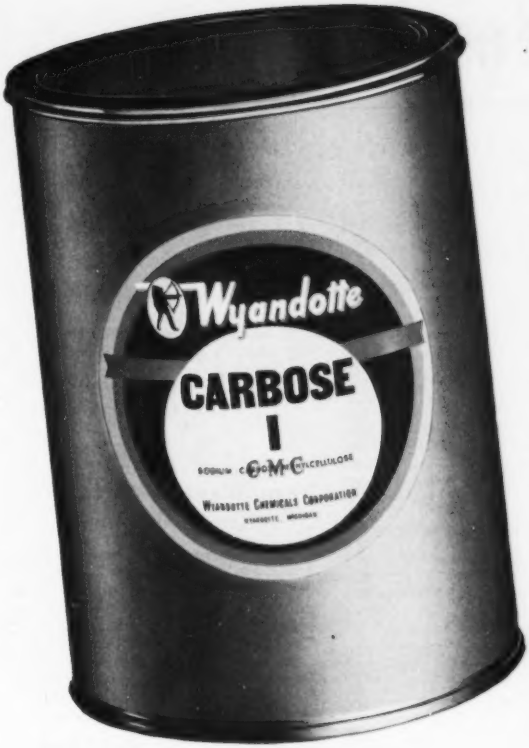
Prices steady. Demand continues ahead of supply. Improvement due this year. Domestic grades are currently quoted at $23 per ton in paper sacks, f.o.b. mills; Canadian at $35 and up per ton. All prices in car lots.

Tapioca Flour

Supplies tighter on all grades. Demand fair. Prices steady. Superior high range from $10.25/$11.50 cwt.; high grades $9.25 cwt., on dock Atlantic and Gulf ports; medium grades range from $6.50/$7.50 cwt. on dock, N. Y.

Titanium Dioxide

Supply reported now in balance with eased demand. Prices firm. Anastase 19½c pound carload lots, 20c l.c.l., rutile, 21½c pound carload lots, 22½c l.c.l.; 50-pound bags, f.o.b. plant, actual freight allowed.



INDUSTRIAL GRADE OF SODIUM CMC

Proving its capacity for improving paper products, because of these advantages:

- **RESISTANCE TO OIL PENETRATION**
- **REDUCED FEATHERING**
- **GREATER BRILLIANCY**
- **BETTER FOLDING PROPERTIES**
- **LESS WAX**
- **INCREASED BURSTING STRENGTH**
- **IMPROVED PRINTABILITY**
- **GREATER TENSILE STRENGTH**

IT MAY pay you to investigate the application of ***Wyandotte Carbose I**** in certain phases of paper production. Carbose is a technical grade, low viscosity, sodium carboxymethylcellulose with a wide variety of uses in the Paper Industry. It can be added at the beater, squeeze rolls, size press, or calender stack of the machine or at a machine coater to impart various improved properties to liner, boxboard and a wide variety of papers.

To increase the bursting strength of jute liner, approximately 1½% solution of Carbose is added usually at the calender stack. Improved printability and better tensile and folding properties are also found.

A Carbose film is resistant to grease and oil penetration and therefore imparts a superior finish and gives reduced feathering and greater brilliance to glossy inks for all types of liner, boxboard and paper where such properties are desired.

Carbose is compatible with starches, polyvinyl alcohol, casein, wax emulsions, and most other paper chemicals.

Carbose offers many advantages in the manufacture of waxed paper, fiberboard, wallboard, and other pulp and paper products. It is useful in de-inking operations—and in clarifying white water by gelling fibers, fillers and pigments in the water.

You'll find this versatile chemical effective in performance and economical to use. For samples and additional information on the properties and applications of Wyandotte Carbose I, write the Development Department, Wyandotte Chemicals Corporation, Wyandotte, Michigan.

*Reg. U. S. Pat. Off.

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CALCIUM CARBONATE • CALCIUM CHLORIDE
CHLORINE • HYDROGEN • DRY ICE
SYNTHETIC DETERGENTS • GLYCOLS
CARBOSE (Sodium CMC) • ETHYLENE DICHLORIDE
PROPYLENE DICHLORIDE • CHLOROETHERS
AROMATIC SULFONIC ACID DERIVATIVES
OTHER ORGANIC AND INORGANIC CHEMICALS

Wyandotte Chemicals Corporation
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Financial Record

Preferred Stocks	Per Share Earnings: Calendar Year 1947	Per Share Earnings: Calendar Year 1948	Indic. Annual Divid. Rate	April 12 Approx. Market Price
Armstrong Cork Co. $3.75 Cum.	$38.64*	$46.33*	$3.75	96⅛
Armstrong Cork Co. $4.00 Cum. Conv.	38.64*	46.33*	4.00	107
Celotex Corp. 5% Cum.	24.25c	21.22g	1.00	17⅜
Champion Paper & Fibre $4.50 Cum.	65.90f	61.80j	4.50	93
Container Corp. of Amer. 4% Cum.	102.74	105.41	4.00	97
Crown Zellerbach $4.20 Cum.	56.40f	63.54g	4.20	96¼
Crown Zellerbach $4.00 Cum. Conv. 2nd	53.96f*	60.21g*	4.00	94½
Dixie Cup Co. $2.50 Cum. Conv. Cla	9.16	10.10	2.50	80½
Flintkote Co. $4 Cum.	81.91	83.25	4.00	99½
Robert Gair Co., Inc. 6% Cum.	20.11	17.08	1.20	16⅝
International Paper Co. $4 Cum.	236.51	263.00	4.00	96⅞
Johns-Manville $3.50 Cum.	128.81	209.89	3.50	106⅞
Kimberly Clark Corp. 4¼% Cum.	70.03	80.74	4.50	103⅝
Kimberly Clark Corp. 4% Cum. Conv. 2nd	41.60*	41.59*	4.00	97½
MacAndrews & Forbes 6% Cum.	62.20	59.89m	6.00	136¼
Mead Corp. 4¼% Cum.	81.56	73.46	4.25	75½
Mead Corp. 4% Cum. Conv. 2nd	33.30*	29.91*	2.00	33½
Paraffine Cos. Inc. 4% Cum. Conv.	152.76a	156.11	4.00	103¼
Rayonier Inc. $2 Cum.	13.58	16.43	2.00	31¼
St. Regis Paper Co. 4.40% 1st A	76.93	79.90	4.40	84
Scott Paper Co. $3.40 Cum.	43.95	59.06	3.40	94¼
U. S. Gypsum Co. 7% Cum.	211.34	314.45	7.00	181⅛
United Wallpaper Inc. 4% Cum. Conv.	(d)1.35a	(d)0.79	2.00	23¾
West Virginia Pulp & Paper 4½% Cum.	75.75c	81.01g	4.50	105⅝
Common Stocks				
APW Products Co.	$1.24	$0.73	$0.25	3⅞
American Writing Paper Corp.	1.61	(d)0.15	0.25	5⅞
Armstrong Cork Co.	6.41	7.54	3.00	43¼
Celotex Corp.	6.59c	5.73g	2.00	20⅝
Certain-Teed Prods. Corp.	3.75	4.02	1.15	11⅞
Champion Paper & Fibre	5.57f	6.09j	2.00	21⅜
Congoleum Nairn Co.	4.55	5.78	2.25	29⅛
Container Corp. of America	10.09	10.12	4.50	32⅝
Crown Zellerbach	6.81f	7.26g	2.00	25
Dixie Cup Co.	5.87	6.70	1.00	28⅛
Eastern Corp.	5.02	4.76	1.00	12¼
Flintkote Co.	6.27	5.86	2.50	25¾
Robert Gair Co., Inc.	3.18	2.67	0.70	6⅛
Great Northern Paper Co.	4.56	4.63	2.80	35¾
International Paper Co.	15.02	16.73	5.00	48¾
Johns-Manville Corp.	3.17	5.22	2.00	34⅞
Kimberly-Clark Corp.	4.29	5.02	1.65	20⅝
MacAndrews & Forbes Co.	3.68	3.53m	2.50	31¾
Marathon Corp.	3.39c	4.08g	1.40	20⅛
Mead Corp.	7.33	6.36	2.00	16
National Container Corp.	4.13	2.28	0.80	7¼
Paraffine Cos. Inc.	2.40g	2.45	1.20	17
Rayonier, Inc.	7.30	9.09	2.00	23⅞
Ruberoid Co.	9.89	11.80	3.25	47½
St. Regis Paper Co.	2.66	2.71	0.80	8
Scott Paper Co.	3.02	4.15	2.50	50⅝
Sutherland Paper Co.	6.87	6.02	2.50	32½
Taggart Corp.	1.29	1.06	0.60	10⅜
Union Bag & Paper Corp.	7.93	9.17	4.00	25¼
United Board & Carton	4.95b	0.73h	(e)	5⅛
U. S. Gypsum Co.	10.00	15.04	6.00	99⅜
United Wallpaper	(d)0.11a	(d)0.10	(n)	3⅜
West Virginia Pulp & Paper	11.40c	11.51g	4.00	37½

(a) Year ended 6/30/48
(b) Year ended 5/30/48
(c) Year ended 10/31/47
(d) Deficit
(e) Omitted dividend 2/4/49
(f) Year ended 4/30/48
(g) 12 months to approximately 1/31/49
(h) 12 months to 2/5/49
(j) 8 months to 12/31/48
(m) 12 months to approximately 9/30/48
(n) Last payment 25c, 9/16/47
(*) Earnings per combined preferred shares.

Dividends Declared

British Columbia Pulp & Paper Co., Ltd., has declared a dividend of $1.75 per share on its preferred stock, payable May 1 to shareholders of record April 15.

Plows Profits Back In

TORONTO — A large slice of 1948 Abitibi Power & Paper Co., Ltd., profits went into a mill improvement program.

Major venture of 1949, according to President D. W. Ambridge, will be the introduction of "super newsprint," a super calender paper.

The Fort William mill has been equipped so that it can produce this highgrade newsprint by summer.

At several other Abitibi mills, Mr. Ambridge reported, new or rehabilitated machines are making possible a greatly increased production of newsprint and pulp with smaller crews.

Abitibi's president said he foresees 1949 as another record year for the company and the first since 1928 in which common shareholders will receive a dividend.

The company is beginning to spend large sums on research for new products. Much more would be expended in this direction if enough of the "proper men" were available to do a good job, President Ambridge declared.

Abitibi produced 680,049 tons of newsprint in 1948, more than double its output of 1939. Pulp production also soared.

Reed Rayonier Director

NEW YORK—William G. Reed, president of the Simpson Logging Co., was elected a director of Rayonier, Inc., on April 6. The Simpson Logging Co. was founded in 1895 by Mr. Reed's grandfather and has been operated under the direction of members of the Reed family since that time. Mr. Reed also is a director of the Pacific Car & Foundry Co. and the Seattle-First National Bank, and has interests in other business activities in the Northwest.

$7,500,000 Gaylord Loan

NEW YORK—The Gaylord Container Corp., through Lehman Brothers, has concluded arrangements with the Equitable Life Assurance Society for the sale of 3 percent notes in the maximum amount of $7,500,000. Repayment is to begin April 1, 1950, and the remaining amount of the notes will be due April 1, 1964.

$22,000,000 to Sweden

WASHINGTON — Signing of a supplementary loan agreement with Sweden, for $12,000,000, was announced by the ECA and export-Import Bank last week. This brings the total of advances to Sweden to $22,000,000 for the first year of the ECA program in that country.

8 Value Complications

OTTAWA—The report that Britain is getting newsprint from Sweden at $170 a ton in return for British machinery at almost twice its normal value is causing considerable displeasure unofficially in Canada and arousing much discussion in trade circles.

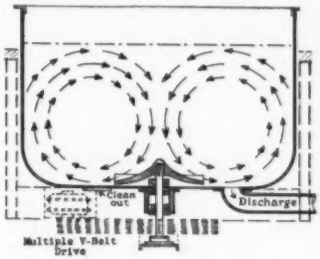
Expand Forest Prod. Lab.

OTTAWA—Construction of two temporary buildings at the Forest Products Laboratories has been announced in Parliament here by Finance Minister Abbott on behalf of the Canadian Government, with the cost of the buildings to be $55,000.

Equipment & Supplies

Aquabrusher Pulper

The Aquabrusher Pulper and Beater is described as a five-purpose improvement on the Hollander beater for pulping, defibering; beating, brushing, hydrating; cutting; centrifugal cleaning; and fine screening of baled waste



papers and pulp, so designed that all operations are performed simultaneously by rapid rotation of beater-impeller. Diagrammatic elevation section drawing shows the circular metal (or tile-lined) tank containing paper-making stock, with Aquabrusher, centrifugal stock cleaner and screen mechanism in lower center. Rapid rotation of beater-impeller causes rapid vortical circulation of paper-making stock, which causes waste papers or pulp to submerge, descend and be beaten to slush. Beater-impeller blades bat outwardly and away from the screen dirt, junk and like foreign matter into tank corner where it settles on bottom. Defibered stock flows between beater-impeller blades and is accepted by fine screen. (Junk and rag removers are provided in some installations). Adding to fundamental methods for removing dirt from paper stock, separation by centrifugal cleaning for differences in specific gravity, and separation by fine screening through perforated, round holes of screen plate, the Aquabrusher is said to be producing up to 5 tons of clean paper stock per hour using less than 75 h.p. for the hour. For details and prices write to American Paper Machinery and Engineering Works, Inc., Glens Falls, N.Y.

Custom Made Dextrines

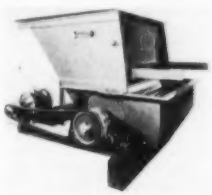
Custom and standard blends of tapioca, potato and corn dextrines in improved grades for the paper and textile industries are announced as the result of recent installations of special design dextrine processing equipment and manufacturing methods. Tapioca dextrines, ranging from dark yellows to light eggshell colors, 100 percent soluble in water, are made for flat gumming, envelope seal flaps, postage stamps and similar remoistening uses. White tapioca dextrines of various solubilities are designed to fit requirements as sizings and as cookup paper bag pastes. Raw materials are obtained from modern Brazilian producers of tapioca starch, and are said to be at least the equal of prewar Java types. White potato dextrines, made from Maine potato starch, are of types suitable for manufacturing high-grade library paste and similar adhesives, others as stiffening sizings in textile manufacture. Canary grades of potato dextrines also are offered for industrial uses, and special formulas are prepared to customer specifications in a wide assortment of blends. Corn dextrines are produced for industrial uses where standard commercial grades are unsuitable. For details and prices write to Morningstar, Nicol, Inc., 1770 Canalport avenue, Chicago 16, Ill.

Temperature Controller

Temperature Controller is described as a temperature controller and motorized valve combination for on-off, two-position, floating or proportional control. It is designed to provide speedier and more economical installation and lower-cost maintenance for hundreds of industries. Self-contained assembly includes valves, linkage, motor, transformer and temperature controller. In operation, a remote-bulb thermal system positions a powerful motorized valve in response to temperature changes. Unit is available with temperature changes between minus 50 degrees and plus 700 degrees Fahrenheit, and with different sizes and types of valves. For details and prices write to Brown Instrument Co. (Div. of Minneapolis-Honeywell Regulator Co.), 4532 Wayne avenue, Philadelphia 44, Pa.

Chip Screen Feeder

The Chip Screen Feeder has been redesigned to feed the screen at a uniform rate and to eliminate the need for oversize screens to handle surges. Feeder is of rotary vane type driven by a chain drive from a gear reducer



direct-coupled to motor, and is said to be suitable for installations with various types and sizes of chip screens. Housing is designed for bolting to bottom of surge hopper. For details and prices write to Allis-Chalmers, Milwaukee, Wis.

Dowicide G

Dowicide G, water-soluble sodium pentachlorophenate, is now available in hard pellets said to be comparatively free from dust. In flake form, the germicide and fungicide has been used by pulp and paper and other industries for effective control of micro-organisms. The purely physical change from flake to small cylindrical pellets, com-

pressed to one-fourth the volume of the flake, was developed to control dust and facilitate handling of the salt during application. Comes packed in 200-pound Leverpak fiber drums marked *pellets* to distinguish from the flake. For details and prices write to Dow Chemical Co., Midland, Mich.

Alkali-Stable Emulsifiers

The alkali-stable emulsifiers are two new surface active agents for use in emulsifying or wetting where stability to high alkalinity or acidity is of primary importance. Both products are polyoxy-ethylene lauryl alcohols, BRIJ 30 being generally water dispersible and oil soluble, and BRIJ 35 water soluble. General characteristics are listed in the accompanying table.

Characteristics

	BRIJ 30	BRIJ 35
Form at 250 deg. C.	Oily liquid	Waxy Solid
Viscosity (c.p. at 250 deg. C.	25-125	.....
Titer (°C.)	.....	35-36
Specific Gravity ...	0.92-0.98	1.18-1.22
Color	Lemon	White

For details and prices write to Atlas Powder Co., Public Relations Dept., Wilmington 99, Del.

Beck Slitter

The Beck Slitter is designed to cut and rewind standard full-width rolls of cellophane, glassine, paper and other light-weight materials into widths from ½ inch up. It eliminates the necessity of storing vari-sized rolls of material. Ordinary double-edged, three-holed razor blades are used for slitting operation, and all four corners can be used before discarding. Requires no special skill to operate, and can be handled by one man. For details and prices send envelope-sized sample of material to be cut to Charles Beck Machine Corp., Terminal Commerce, Philadelphia 8, Pa.

Suppliers

Don Metz, an engineer of the Byron Jackson Pump Co., Los Angeles, was the man who supervised the technical work when heroic but fruitless efforts were being put forth on April 8-9-10 to rescue baby Kathy Fiscus from the abandoned well-shaft where she lost her life. Mr. Metz is a personal friend of the Fiscus family.

S. Riley Williams, vice-president of the Worthington Pump & Mach'y Corp., Harrison, N. J., spoke on "U. S. Foreign Trade and U. S. Foreign Trade Policies" before the Machinery-Metals Export Club luncheon, March 22, at the annual get-together convention of the Export Managers Club at Hotel Statler, New York City.

National Starch Products, Inc., New York City, has named Lester Klempner New York division sales manager. Previously he was field manager of the firm's midwestern division, with headquarters at Chicago.

The Jessop Steel Co., Washington, Pa., has made the following promotions of production personnel: Arthur B. Cooper is now assistant to C. A. Gordon, vice-president in charge of operations. Mr. Cooper was formerly assistant general superintendent. Edwin C. Thomas, Jr., formerly superintendent of the bar mill, is now general superintendent. Benjamin H. Brown is again superintendent of the electric furnace department. He formerly held the same position prior to April 1, 1948, and has been engaged in consulting work during the interim. Joseph W. Stier, who has joined the organization as superintendent of scheduling, was formerly employed by the Crucible Steel Co. of America.

D. J. Murray Mfg. Co., Wausau, Wisc., has named four manufacturers' agents as distributors of Grid Unit Heaters and allied products in their respective territories as follows: I. Ernest Shaer, Boston; G. T. Pottinger & Co., Atlanta; Jordan Engineering Co., Cincinnati; and Lefler Wyomont Supply Co., Casper, Wyoming.

The Tuf-lite family of high-impact-resistant - rubber - resins, developed by the Chemical Division of the Goodyear Tire & Rubber Co., will henceforth be known as Plio-Tuf to bring them into closer identification with Pliofilm, Pliotherm, Pliobond and the various Pliolite resins produced by Goodyear.

T. C. Culver has been appointed representative in Western New York, Pennsylvania, Ohio, Eastern Michigan and a number of southern states for Hycar and rubber chemicals of the B. F. Goodrich Co., Cleveland. Mr. Culver has been with this organization since 1940. He joined the sales service laboratory in 1947 and until the present time has been engaged in sales development work.

Alfred A. Halden, executive vice-president of National Starch Products, Inc., New York City, was honored with a testimonial luncheon on the occasion of his recent 30th anniversary with the firm. More than 80 associates, each averaging more than 16 years' service with National, attended.

Wm. J. Hourigan, treasurer of the E. P. Lawson Co., Inc., New York City, was honor guest at a dinner given to him by 16 Lawson executives in the home of David W. Schulkind to commemorate his recent completion of 30 years of service with the firm.

The Philadelphia Quartz Co., Philadelphia, has appointed Richard D. Greenway to its sales staff in the Maryland, Virginia, North Carolina territory. He has been covering eastern Pennsylvania for the past five months.

Robert W. Marshall, assistant secretary of the Worthington Pump & Mach'y Corp., Harrison, N. J., addressed the Worthington International Students' Commencement on March 22.

Frank W. Perry has been named manager of the Charlotte, N. C., office of Stein-Hall & Co., Inc.

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Army Awards Made

One (1) award has been made on:

QM-30-280-49-1041 covering Paper, Teletype, roll form, 4 copy, multicolor, white, blue, pink and yellow, 8½" wide—to: Enterprise Paper Co., Philadelphia, Pa.—56,000 each from: $.8690 to $.9286. Directive quantity was 56,000 each. This procurement is for the U. S. Army.

Nine (9) awards have been made on: QM-30-280-49-864 as follows:

Walker Goulard Plehn Co., 450 Pearl St., N. Y.C.—Paper, Duplicator, Liquid Process, Copy Paper, Sub-20 Canary, 8 x 13½—16,500 reams from $.8009 to $.807. Same as above—White 8 x 13½—5,500 reams from $.7575 to $.7635. Same as above—White 8½ x 10½—4,400 reams from $.5928 to $.6312. Paper, Mimeograph, Wood-Pulp (Chemical) sub-16, white 8½ x 10½—5,625 reams @ $.4099.

Kennelly Paper Co., Inc., 501 Fifth Ave., N.Y.C. — Paper, Duplicator, Liquid Process, Copy Paper, Sub-20, Whites, 8 x 13½—5,625 reams from $.6405 to $.674. Paper, Mimeograph, Wood-Pulp (Chemical) sub-16, white 8½ x 10½—25,454 reams from $.3946 to $.4172.

Mead Sales Co., 230 Park Ave., N.Y.C.—Paper, Duplicator, Liquid Process, Master Paper, Sub-24, White 8 x 10½—15,500 reams from $.938 to $1.145.

Dexter Sulphite Pulp & Paper Co., Dexter, Jefferson Co., N. Y.—Paper, Mimeograph, Wood-Pulp (Chemical) Sub-16, Canary, 8 x 13½—630 reams from $.57754 to $12.50 cwt. Same—White 8½ x 10½—28,750 reams from $.42 to $11.00 cwt. Paper, T/W, Bond, Sulphite, Sub-16, Pink 8½ x 10½—5,000 reams from $.47727 to $12.50 cwt. Same—White 8 x 10½—146,049 reams from $.39529 to $11.00 cwt. Paper, T/W, Bond, Sulphite, Sub-16, White, 8 x 13½—18,000 reams from $.50824 to $11.00 cwt. Same—White 16 x 21—5,750 reams from $1.58118 to $11.00 cwt.

Standard Business Mach. Corp., 215 Fourth Avenue, N.Y.C.—Paper, Duplicator, Liquid Process, Master Paper, Sub-24, White, 8 x 10½—3,250 reams @ $.99.

Old Dominion Paper Co., 75 Commercial Place, Norfolk, Virginia—Paper, T/W, Bond, (Sulphite) Sub-16, Pink, 8½ x 10½—1,100 reams @ $.4524.

Champion Paper & Fibre Co., Hamilton, Ohio —Paper, Mimeograph, Wood-Pulp, Chemical, Sub-16, Canary, 8 x 13½—370 reams from $.552 to $.5585. Same—White 8½ x 10½—2,671 reams @ $.4171. Paper, T/W, Bond, Sulphite, Sub-16, Pink 8½ x 10½—1,900 reams from $.800 to $.1100. Same—White, 8 x 10½—61,451 reams from $.3995 to $.4045. Same—White, 8 x 13½—6,900 reams from $.5142 to $.5151. Same—White, 16 x 21—4,625 reams from $1.5766 to $1.5979.

Boston Paper Board Co., 171 Albany Street, Boston, Massachusetts—Same as above—White, 8 x 10½—42,500 reams @ $.3924. Same as above—White, 8 x 13½—5,100 reams @ $.5036. Same as above—White, 16 x 21—2,125 reams @ $1.559.

Paper Corp. of America, 350 Fifth Avenue, N.Y.C.—Paper, Duplicator, Liquid Process, Copy Paper, Sub-20, Canary, 8 x 13½—21,000 reams from $.6953 to $.8738. Same as above—White 8 x 13½—1,375 reams from $.734 to $.8736. Same as above—White, 8½ x 10½—1,100 reams from $.6063 to $.7217.

Directive Quantity: 422,300 reams. This procurement is for the U. S. Army.

Army Invitations to Bid

QM-30-280-49-1143 — Tape, Blank, recording teletype ½" width, white 8", OD roll 2", ID Fiberboard Cores: Oiled, w/end of tape signal: U/W; Teletype perforator-Distributor set— 970,000 each. Bids will be opened 22 April 1949 at 2 PM (EST) at the New York office. This procurement is for the U. S. Army.

QM-30-280-49-1144 — Envelopes, Greaseproof, Barrier Material, dimensions—flat, size 2¼" inside, 42½" length—36,000 each. Bids will be opened 21 April 1949 at 3 PM (EST) at the New York office. Delivery: to be completed during May 1949.

Navy Invitations to Bid

Invitations to Bid have been issued by the Navy Purchasing Office, 111 East 16th Street, New York, New York, on the following items:

Inv. No. 4527—Folders, File, Pressboard—11,300 sets. Bids Opening: 2 May 1949. Delivery: June 1949 to various destinations.

Inv. No. 4509—Paper, Index, 50% Rag—150,000 sheets. Bids Opening: 28 April 1949. Delivery: Officer in Charge, Navy Recruiting Bureau, Baldwin, Long Island, in 30 days.

Inv. No. 4530—Labels, Paper, Gummed, Various—17,800 boxes. Bid Opening: 28 April 1949. Delivery: May 1949 to various destinations.

Navy Awards Made

Inv. No. 4292—File Folders, wallet type, 9½ x 14⅞"—900,000 each, to:

The Old Dominion Paper Co., Norfolk, Va.—from: $.02588 to $.02638 each.

Inv. No. 4301—Paper, mimeograph, white, type III—various—706,000 reams, to:

The Old Dominion Paper Co., Norfolk, Va. —550,200 reams—from: $.41098 to $.52398 per ream.

Oregon Pulp & Paper Co., Portland, Oregon—142,000 reams—from: $.4984 to $.6172 per ream.

Birmingham & Prosser Co., New York City—9,000 reams @ $.503 per ream.

Bulkley & Dunton Co., New York City—4,800 reams @ $.505 per ream.

Salmon Protection Sought

KETCHIKAN, Alaska—Addressed to proper authorities, joint memorial No. 24 introduced by Senator Peratrovich was passed in the Alaska Senate on March 9. It includes the following:

WHEREAS, with the advent of the paper pulp industry, large scale logging is about to be commenced in the forest area of mountainous Southeastern Alaska, in which area short shallow streams which afford the spawning grounds for salmon flow through the forests to tidewater; and

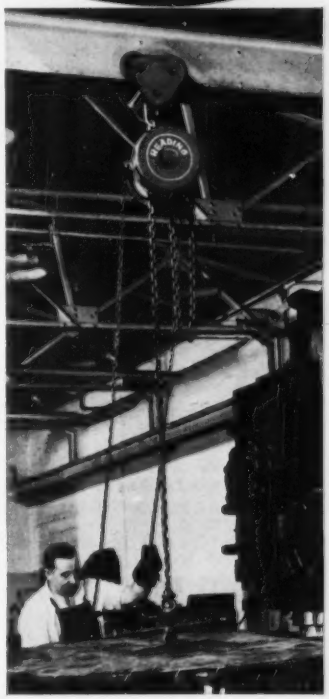
WHEREAS, the beds of said streams will in many cases afford comparatively economical routes for dragging logs from place of cutting to tidewater, which is emphasized by the fact that loggers cutting for sawmills have in the past used shallow stream beds for such purposes; and

WHEREAS, the use of shallow stream beds as skid roads is ruinous to salmon spawning in such streams, as the stream beds are gouged down to bedrock and sand and loose gravel necessary for spawning is pushed upon the banks; and

WHEREAS, other routes for skid roads could be used without undue cost to paper pulp operators and others, preventing ruination of spawning grounds vitally necessary to preserve the already depleted Southeastern Alaska salmon runs;

NOW THEREFORE, it is urged that the Forest Service, in contracting for logging purposes and in regulating such logging, incorporate such terms in said contracts and lay down such conditions in said regulations with respect to dragging logs to tidewater as are necessary and advisable to prevent ruination of shallow streams as spawning grounds, and that the Fish and Wildlife Service extend its cooperation in consultation and otherwise with the Forest Service to carry out the intent and purpose hereof.

TO HOLD LOADS *Accurately* WITH SAFETY



The positive acting friction brake on the Reading Multiple Gear Chain Hoist makes possible accurate positioning of the work or load with complete safety.

The maple inserts in the brake wheel hold the load tightly against the friction disc till the load is to be moved. Lowering requires only that the operating chain be pulled in the down direction. The load lowers without slipping or speeding up.

Each Reading Multiple Gear Chain Hoist is so well built that it has a guaranteed overload capacity of 25% in every size from ¼ ton to 25 tons.

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CHAIN HOISTS • ELECTRIC HOISTS
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READING HOISTS

Bastrop Busy

BASTROP, La. — Chester McCord, superintendent of BagPak, said on April 4 that BagPak was "not a bit affected" by the recent shortages of orders in some other Southern paper container plants. He said his firm curtailed production last October to one-half of normal because of a seasonal fluctuation in the demand for bags of the sort produced by his division.

Mr. McCord added that production is now back to 80 percent of normal. He stressed the seasonal nature of his products saying that winter months always brought an expected drop in orders.

At Single Service, where paper milk containers are made, M. L. Quinlan, plant manager, said that it was not true that milk containers were in danger of having production cut. Mr. Quinlan said that orders were coming in so fast that he was having a difficult task training help to take care of them and cited the fact that his firm had taken on eight new customers last week and that 18 new accounts were added during the previous week. He said that far from curtailing production, production was increasing rapidly and that about 5,000,000 containers a month are sent to Japan alone. One of the new accounts is for shipment to Argentina, Mr. Quinlan said.

Paper Napkin Ass'n

NEW YORK—The executive committee of the Paper Napkin Ass'n, Inc., headed by William F. Erisman of the Erving Paper Mills, met on April 3, at the Barclay hotel and elected B. T. Hoffmaster of the Hoffmaster Paper Co. to take the place of K. C. Hamilton of the Milwaukee Lace Paper Co., who was unable to accept his appointment to the executive committee.

As a result of a thorough discussion, the chairman was instructed to appoint a special committee to work with the National Bureau of Standards on proposed revision of the Federal Specifications for Paper Napkins. In addition, it was decided to appoint a special, separate membership committee and a committee to cooperate with the Association office in enlarging the scope of the present statistical services of the Association.

St. Lawrence Changes

MONTREAL—David Van Alstyne, Jr., chairman of the St. Lawrence Corp., Ltd., on April 7 disclosed a series of executive changes for the corporation and its subsidiaries, the principal one being the election of John I. Rankin as president of the parent organization and chairman of both the St. Lawrence Paper Mills Co., Ltd., and the Lake St. John Power & Paper Co., Ltd.

Other changes included the election of P. M. Fox as president of the two operating companies and the addition of the following to the board of the parent company: Edouard Asselin, Edward Ross, J. F. Connolly and R. W. Drummond.

Responsibility Union's

NEW HAVEN, Conn.—Superior Court Judge Kenneth Wynne ruled on March 31 that the National Folding Box Co., closed its lithographing department because union demands for higher wages left it "no alternative." There was no labor dispute between the company and the union when the closed department's 25 employes were discharged and the men are entitled to unemployment compensation benefits, Judge Wynne held.

The reason for the absence of a labor dispute, he said, was that the company's decision to close the department became "final and irrevocable" on May 14, 1948, two weeks before the employes were dismissed. The State Unemployment Compensation Law denies benefits to workers made idle by a labor dispute.

The company withdrew its appeal from an award of unemployment compensation by Commissioner Max L. Goldenthal, saying it objected only to his conclusion that the lithographing department was closed because of competition from commercial shops.

It contended, and Judge Wynne agreed, that demands by Local 1 of the Amalgamated Lithographers of America, CIO, representing the employes, that the firm meet the New York City wage scale left it no choice but to shut down the department.

The company told the court that Commissioner Goldenthal's findings "unjustly reflect upon the honest desire of the company to continue the employment of the claimants, many of whom had been in its employ for many years."

Business Picking Up

SPRINGFIELD, Mass.—U. S. Envelope Co. has ended the last of its war-time operations by closing down the section where rigid containers were made during the war.

Arthur F. Peterson, vice-president in charge of production, said that while a few commercial orders for rigid containers were received after the war, the product was made in a small section of one department and was really a "war baby." He added that business generally has been "picking up a little over the past 30 days." Almost all employes are working a full 40-hour week, he said, some a little under and some over that figure.

Addresses Junior League

SPRINGFIELD, Mass.—Theodore White, president of the White & Wycoff Paper Co. and a member of the United World Federalists, addressed the Junior League on April 5 on "World Government."

New OPPCO Sawmill

MILL CITY, Ore.—Work is progressing on a new sawmill being built by the Oregon Pulp & Paper Co. east of town, according to Tony Ziebert, local manager.

No Jobs, Trouble Bubbles

HEARST, Ont. — Destitute woodsmen are becoming violent as the bush camp shutdown in this area stretched into its seventh week, police said last week.

Four men were slugged and robbed of about $200 each within recent days. Workers whose neat appearance marks them out as targets have begun to carry blackjacks for defense.

Large numbers of the unemployed are still solvent enough to keep the saloons filled steadily. One hotel, instead of handing out the SRO sign, locks its doors when the seating capacity becomes exhausted.

Hearst's trouble began last December when the pulpwood companies curtailed operations and imported what are described as "large numbers" of European and Japanese DP's. From late February on, however, when the few remaining camps closed, the influx of bush workers jammed hotels and rooming houses to overflowing. No prospect of improvement is seen until the snow, waist-high in the bush, melts.

Aiding Communism?

VANCOUVER, B. C. — A millionaire Australian industrialist, Sir Herbert Gepp, 71, said last week that a shortage of pulpwood in Europe is hampering the fight against Communism there. En route to Montreal to attend a special meeting of the Food & Agricultural Organization of the United Nations, Sir Herbert said world pulp supplies "are very much out of balance in all parts of Europe" because of an acute shortage of dollars. "One of the most serious effects has been to cut down printing of essential educational material for the people of Europe." He said democracy can only win its case against Communism in Europe "if the people are kept well informed."

More British Newsprint

LONDON, Eng.—Harold Wilson, president of Britain's Board of Trade, announced in the British House of Commons that from April 24 newspapers would receive an increased allotment of newsprint.

The current newsprint production is sufficient, Mr. Wilson indicated, to permit a national daily of five pages to expand to six pages.

From the beginning of July, Mr. Wilson added, he hoped to make an increase of approximately 50 percent in permitted paper consumption.

Diamond Incorporation

DANVILLE, Va.—The Diamond Paper Co. has been incorporated under a charter issued by the State Corporation Commission and recorded in the clerk's office of Corporation Court. The officers are listed as Roy G. Bishop, president; James R. Anderson, vice-president; and Lillian W. Bishop, secretary-treasurer.

Maximum capital stock is listed at $150,000 and the minimum at $5,000.

Syracuse Safety Conference and Exposition

SYRACUSE, N.Y.—Special sessions on pulp and paper mill safety are planned at the Central New York Safety Conference and Exposition, scheduled here for May 9-11, at the Syracuse and Onondaga hotels, Newell C. Townsend, conference chairman, reports. The gathering is sponsored by the Safety Division of the Syracuse Chamber of Commerce, and the Central New York Chapter of the American Society of Safety Engineers.

The Conference program provides for 35 sessions with 108 speakers and panel participants. At the exposition, personal protective equipment, machine guards and other safety devices will be displayed.

Chairman of the May 9 afternoon pulp and paper session at Hotel Onondaga will be George W. Craigie, secretary-treasurer of the American Pulp & Paper Mill Superintendents Ass'n., New York.

Howard Dyke, of the International Paper Co., Glens Falls, N.Y., will speak on "Wood Handling" at 2 P. M. May 9. Other speakers include: John W. Carey, safety director, B.F.D. division, Diamond Match Co., Plattsburg, N.Y., whose subject will be "Safe Handling of Pulp Making Materials," and Russell Chapman, safety director, Howard Smith Paper Mills, Ltd., Ont., Canada, who will speak on "Safety in Processing Pulp."

Chairman of the May 10 morning pulp and paper session at Hotel Onondaga will be Edward A. Jackson, director of personnel and public relations, Gould Paper Co., Division of Continental Can Co., Lyons Falls, N.Y.

Speakers and their subjects follow: Harold F Carpenter, assistant manager, Crown Zellerbach Corp., Carthage, "Paper Machine Safety"; Stewart O'Brien, master mechanic, Gould Paper Co., Division of Continental Can Co., Lyons Falls, N.Y., "Maintenance with Safety;" Gardner W. Scott, Racquette River Paper Co., Potsdam, N.Y., "Safety in the Finishing Department;" Pat Rooney, superintendent of Claims, St. Regis Paper Co., Deferiet, N.Y., "Accident Costs."

A pulp and paper luncheon is planned at 12:15 P. M., May 10, in the Hiawatha Room, Hotel Onondaga. Frederick F. Foote, safety engineer, Liberty Mutual Insurance Co., Syracuse, N.Y., will be chairman, and speaker will be Charles Weatherston, general superintendent, General Mills, Inc., Buffalo, N.Y.

William D. McGuinness, insurance department, Flintkote Co., Inc., New York, N.Y., will be chairman of the pulp and paper conference for the afternoon of May 10.

Speakers and their subjects will be: "William H. McLaughlin, director of Safety and Sanitation, Lily Tulip Cup Corp., New York, "Safety in Food Container Manufacturing;" and Frank C. Stackpole, safety director, Robert Gair Co., Inc., New York, "Board and Box Plant Safety."

Canadian Carloadings

Car loadings of woodpulp and paper on the Canadian railways for the week ended March 26 the Canadian Government reports dropped to 3,940 cars compared with 4,358 in preceding week and 4,526 in similar week ended March 27, 1948, with the Eastern Division accounting for 3,403 cars for week ended March 26th and 3,820 for previous week as well as 3,928 cars for week ended March 27th, 1948. In the Western Division, such car loadings were 537 cars, 538 and 598 for weeks of March 26 and March 19 this year as well as March 27, 1948 respectively.

Such car loadings from the beginning of this year until the week ended March 26 reached a cumulative total of 52,744 cars compared with 53,889 cars a year ago in the similar period ended March 27, 1948, with the Eastern Division involving 45,933 cars against 46,865 a year ago and the Western Division 6,811 cars against 7,024 last year in the same period.

European Technicians ECA Guests

WASHINGTON—Two forestry experts from Norway and a wood research expert from The Netherlands are beginning a three-month study of American methods and techniques that might be of assistance in forestry projects and wood products industries in their own countries, the Economic Cooperation Administration reported on April 4.

The experts, who will visit forestry experimental stations, forest products factories, botanical laboratories and similar installations from coast to coast, were brought to the United States under ECA's Technical Assistance Program. The Forestry Service of the Department of Agriculture is cooperating with ECA in arranging the studies.

The Norwegian experts are Professor Elias Mork, of the Forestry Experimental Station, Aas, Norway, and Professor Franz Germeten, of the Steinkjer, Norway, Forestry School. They are accompanied by Mrs. Germeten, who is traveling at her own expense and acting as interpreter and secretary of the official observers.

The Dutch expert is Dr. W. W. Varossieau, of The Netherlands Central Institute for Research on Materials. Dr. Varossieau's U. S. itinerary is separate from that of the Norwegians.

Prof. Mork, well-known internationally for his treatises on forestry, will concentrate his studies in the U.S. on botanical and wood technology and research and experimental work. He and Prof. Germeten also are particularly interested in U. S. planting methods, artificial reforestation, forestry genetics and nurseries. Prof. Germeten plans to use data gathered in the U.S. in setting up an educational program for forestry students in Norway.

Dr. Varossieau will collect information on a wide variety of subjects needed by the wood industry in Holland. The information will be compiled by The Netherlands Central Institute for use by the forestry trade in general.

Among the subjects to be studied by Dr. Varossieau are the use of wood waste from mills, glueing processes in making plywood, painting, fireproofing and preservation of woods, and control of termites and marine borers. Techniques on these subjects in the U.S. are far advanced over those in Holland.

Travel and living expenses of the three experts in the United States will be paid with ECA funds, which must be matched by the participating countries in their own currencies and placed in counterpart funds for use in other recovery work. The participating countries will pay the experts' passage to and from the United States.

The Norwegian and Dutch delegations have been in Washington, D.C., for several days conferring with officials of the Forestry Service, ECA and other government agencies and arranging details of their trips.

Professors Mork and Germeten will be in Elkins, W. Va., April 4 for a two-days' inspection of the U.S. Forestry Station there. On April 10, they will begin a four-days' visit at the U.S. Forestry Station, Syracuse, N.Y.

Dr. Varossieau will be in Philadelphia, Pa., April 5 and in New York City from April 6 to April 12, paying visits to both private and public organizations, including the American Society for Testing Materials, Philadelphia, and the Polymer Research Institute, Brooklyn.

Details of the country-wide itineraries of the delegations are being worked out. Both parties are scheduled for lengthy stays at the U.S. Forest Products Laboratory, Madison, Wisc

National Bucksaw Contest Winners

MONTREAL — In its national bucksaw contest, which culminated in the finals held March 23-25, at the Montreal Sportsman's Exhibition, the Woodlands Section of the Canadian Pulp & Paper Ass'n. has found an ideal means of stressing the important role played by the lumberjack in the forest operations of the industry. Organized primarily to provide entertainment and sport for the forest workers, the contest further emphasized that a great many woodsworkers, today, are expert craftsmen, who are dead serious about their trade, and who can achieve remarkable production results.

The bucksaw contest created keen competitive spirit and widespread enthusiasm among the participants who numbered many thousands. Eight of the larger companies with forest operations in three provinces, entered the contest, and the majority of their woodsworkers took part in camp preliminaries. Camp winners were presented with sweaters bearing their company's crest, and met in the district quarter-finals. District champions won money prizes and took part in the division semi-finals which offered additional prizes to winners totaling $85 in each division. Finally the division champions competed for company honors, more money prizes, as well as trophies and gifts.

The evening of March 25, before a crowd of more than 4,000 in the armory of the Duke of York Royal 17th Hussars, Leonard Poulin, 23, of St. Godefroy, Bonaventure County, P.Q., representing the Quebec North Shore Paper Co., Baie Comeau, won the finals of the bucksaw contest. Over the three day finals, in six sessions of two cuts each, he averaged 8.5 seconds for the 12 cuts of a 10-inch stripped green spruce log with an ordinary bucksaw, as used throughout Canada in logging camps. He obtained 23 out of a possible maximum of 24 points placing first five times, and second once.

For winning the championship, Mr. Poulin won the Precision Trophy, the Woodslands Trophy, and $100 in cash, in addition to the cash prizes he had won in his company's finals and to other money awards donated by the Sportsman's Exhibition.

Runners up in the contest and winners of individual awards, were Salomon St. Cyr, of Limoilou, P.Q., representing Canadian International Paper Co., with 18 points and an average of 8.7 seconds; and Leopold Carrier, of Kedgwick, N. B., representing New Brunswick International Paper Co., with 11 points and an average of 9.2 seconds.

Other companies and their representatives were, in order of standing: Abitibi Power & Paper Co., Ltd., Ont., represented by Raymond Desbois, of St. Therese, Gaspe County, P. Q.; Ontario Paper Co., Ltd., Heron Bay, Ont., represented by Ludovic Cyr, of Pellegrin, Gaspe County, P. Q.; Anglo-Canadian Pulp & Paper Mills, Ltd., represented by Antoine Valcourt, of Val Brillant, P. Q.; St. Anne Power Co., represented by Fernand Cinq Mars, of St. Ferreol, Montmagny County, P. Q.; and the E. B. Eddy Co., represented by Josephat Couture, of St. Cecile, Nicolet County, Que.

While Leonard Poulin won by account of his average, the best individual cut was made by Salomon St. Cyr, who went through his log in the unprecedented time of seven seconds flat.

First Television User?

NEW YORK—Concluding a six-line item about proposed San-Nap-Pak televising (March 31, Page 30, Col. 3), the editor asked, "Is this the *first* paper firm to use television?"

G. A. Duff, manager of public relations of the Scott Paper Co., Chester, Pa., reading the query, wrote on April 7: "The last sentence of page 30 of your March 31 issue asks an editorial question which I trust the enclosed clipping will answer." The clipping to which Mr. Duff referred read in part as follows:

"To the Queen's Taste," a weekly CBS Television Network Program, sponsored by Scott Paper Company, made its debut on Thursday evenings February 10.

"To the Queen's Taste" is a new show which presents step-by-step demonstrations of cooking methods and recipes. Star of the program is Mrs. Dione Lucas.

Cut-Rite and ScotTowels are featured during the program and may be seen on any of the following CBS Television Network Eastern Stations: New York—WCBS-TV; Boston—WNAC-TV; Philadelphia — WCAU-TV; Baltimore — WMAR-TV; and Washington—WOIC. Don't forget to pull out your pots and pans and tune in on WCBS-TV on Thursdays at 8 p.m. for a half hour of televised cooking.

Are there any other contenders for the honor of being *first* in using television as an advertising medium, now claimed by the Scott Paper Co?—ed.

ROBERT L. BOEHM

The faculty of The Institute of Paper Chemistry, Appleton, Wis. has unanimously voted to select Robert L. Boehm to receive the annual student award of the Paper & Twine Ass'n., for the year 1949. . . . Mr. Boehm graduated with high honors from Colgate University with an A. B. Degree in 1948. His home is in Buffalo, N. Y. He served for three years in the U. S. Naval Reserve as an ammunition officer. He is a member of the American Chemical Society, Alpha Chi Sigma and Scalp and Blade, a Buffalo organization of college men.

Truman Receives Visit

NORTH ADAMS, Mass. — President Truman listened sympathetically but offered only slender hopes late in March to a Berkshire County delegation which appealed for his support for a $1,300,000 appropriation to start federal flood control projects at North Adams and Adams, paper manufacturers reported today after returning from Washington.

At a 20-minute conference at the White House, the President told the group that he will instruct the Federal Budget Bureau to ascertain if funds already appropriated for other projects can be transferred to the Hoosac River flood control program in order to permit work to be started next year.

Members of the delegation reminded the President that much will depend on the attitude of the Senate Committee on Army Civil Functions Appropriations. The Budget Bureau can recommend, but the Senate Appropriations committee must pass on any appropriations.

The White House visit was an effort to overcome the rebuff suffered last week when the House Appropriations Committee excluded the Hoosac River project from a federal program because application was made after the budget had been drawn up.

Baldwin Guest Speaker

NEW YORK—"Dumb" Dan Morgan, described by Samuel Himmell as "the lovable septuagenarian of the beak-busting business," will be the guest speaker at the 57th Luncheon of the Baldwin Round Table Club, at noon, April 28, in the Wedgewood room of the Waldorf-Astoria hotel.

Mich. Engr. Society Meet

KALAMAZOO — The Michigan Engineering Society will hold its 69th annual convention at Hotel Harris, April 22-23, co-sponsored by the Kalamazoo Engineering Society and the Chief Engineers' Club of Kalamazoo Valley.

Robert E. Woodhams will preside at the opening morning session and Henry Ford, Jr., mayor of Kalamazoo, and Charles A. Hamilton, president of the M.E.S., will speak. Programmed for the first day's afternoon session is a screening of "The New Thrill" film by Gilbert Burrell, motor engineer of the Oldsmobile division of General Motors, and two addresses: "How Paper is Made" by Glenn Stewart, advertising manager of the Kalamazoo Vegetable Parchment Co., and "Design of Steam-Electric Generating Stations" by J. H. Foote, supervising engineering, Commonwealth & Southern Corp. Later features of the day will be a cocktail hour and stag smoker.

Mr. Hamilton will preside at the M.E.S. business meeting the morning of the second day.

A noon luncheon will be followed by three addresses: (1) "Patents for Engineers," by Dean Laurence, patent attorney of the patent firm of Laurence, Woodhams & Mills; (2) "Recent Trends in the Industrial Engineering Field," by John A. Patton of Management Engineers, Inc., Chicago; and (3) "Jevs, Ram Jets and Rockets," by Prof. Wilbur C. Nelson, of the University of Michigan department of aeronautical engineering. A cocktail hour for the engineers and their ladies will follow this meeting. The evening will be given over to the annual banquet with Sewell H. Downs presiding, when the new officers will be introduced and Eugene E. Perrin of the Dow Chemical Co. will speak on Let's Live with Chemistry."

HOOKER ADVANCES THREE

S. I. Anderson (left) has been named assistant to the general sales manager and T. H. Trimble (right) eastern sales supervisor of the Hooker Electrochemical Co., Niagara Falls, N. Y. Neil M. Barber, sales representative, has been assigned to the eastern Pennsylvania and southeastern seaboard territory. . . . Mr. Anderson, who joined Hooker in 1933, was assistant eastern sales manager; Mr. Trimble, with the firm since 1934, was a field salesman. . . . Mr. Barber formerly covered New York State and western Pennsylvania.

MATERIAL HANDLING *News*

Deft as huge trained hands, this revolving scoop enables the Clark fork-lift truck to pick up, carry and manipulate a 1300-pound roll of paper with ease and precision—stands it on end, or tiers it horizontally.

Think of the tremendous saving of time accomplished by this method of handling unit-loads—a 3000-pound palletized load of waterproofed paper is carried from warehouse to boxcar by the fork-lift truck.

WRITE FOR *Material Handling News* —"must" reading.

TACKLE THOSE HANDLING COSTS! It is one of the surest ways to protect and increase profits, say Industry's wisest counsellors; and one of the few remaining opportunities for appreciable savings. The Clark Method expands the capacity of any business by speeding up the flow of material. It increases storage capacity without plant expansion. It minimizes demurrage and costly accidents. It is good common-sense—and now is the time to CONSULT CLARK.

CLARK ELECTRIC AND GAS POWERED FORK TRUCKS AND INDUSTRIAL TOWING TRACTORS

INDUSTRIAL TRUCK DIV., CLARK EQUIPMENT COMPANY BATTLE CREEK 58, MICH.
REPRESENTATIVES IN PRINCIPAL CITIES THROUGHOUT THE WORLD
AUTHORIZED CLARK INDUSTRIAL TRUCK PARTS AND SERVICE STATIONS IN STRATEGIC LOCATIONS

U.S. Exports of Paper, Paperboard and Paper Products

1937-1948

(In short tons, except where otherwise indicated)

Item	1937	1939	1941	1943	1944	1945	1946	1947	1948
Waste fibrous materials, total	186,485	148,051	139,378	26,102	12,647	21,908	86,315	163,106	169,682
Overissue news	96,909	85,635	91,057	5,542	919	375	14,587	30,883	23,080
Rags for paper stock: Valued $50 of over per ton	11,182	6,549	2,919	1,639	1,230	862	2,755	3,560	3,220
Rags for paper stock: Valued $50 or $50 per ton	6,996	4,421	7,559	1,234	1,618	2,807	9,751	8,501	9,135
Other waste paper and paper stock	71,398	51,446	37,843	17,687	8,880	17,764	59,222	120,162	134,247
Paper, paperboard, and paper products, total	221,419	248,569	464,389	319,922	313,911	458,689	393,301	474,094	397,036
Paper and paperboard, total	176,783	197,903	399,245	254,709	253,603	396,198	305,051	352,464	295,155
Paper, total	94,211	96,628	264,164	181,657	180,307	255,047	217,513	213,956	161,374
Newsprint	17,045	13,495	70,265	35,256	31,162	43,651	27,685	28,055	27,662
Book paper, uncoated[1]	14,961	15,387	41,406	22,415	22,022	49,277	43,837	54,130	44,442
Fine paper, total	20,466	21,115	46,430	57,907	67,741	85,671	81,121	68,323	45,304
Writing paper	18,116	18,986	42,047	45,687	55,821	70,985	57,631	46,898	29,943
Cover paper	795	833	1,265	1,304	1,153	1,808	2,570	3,104	1,254
Bristols	1,555	1,296	2,553	3,866	4,057	5,099	5,691	6,051	5,197
Cigarette paper	[2]	[3]	[4] 565	7,050	6,710	7,779	15,229	12,270	8,910
Wrapping, bag, and converting paper, total	27,706	31,842	79,727	45,232	41,001	47,979	44,344	41,396	28,589
Greaseproof and waterproof paper[7]	4,521	4,620	9,746	17,374	17,886	18,702	13,939	13,734	8,500
Wrapping, except kraft[8]	18,587	17,608	44,137	12,628	12,280	15,986	19,846	15,109	9,164
Kraft wrapping[9]	4,598	9,614	25,844	15,230	10,835	13,291	10,559	12,553	10,925
Tissue and crepe paper[9]	[10] 5,251	[10] 6,447	[11] 14,210	11,776	11,170	10,257	7,207	8,428	4,927
Blotting paper	1,456	1,564	2,001	1,063	1,036	2,616	4,551	4,640	2,643
Sheathing and building paper	7,326	6,778	10,125	8,008	6,181	15,396	8,768	8,984	7,807
Paperboard, total	82,572	101,275	135,081	73,052	73,296	141,151	87,538	138,508	133,781
Kraft container board	[3]	42,742	34,598	23,046	31,003	38,166	23,859	47,866	49,990
Other container and boxboard	34,992	14,055	29,311	14,652	12,266	35,703	12,857	12,011	12,444
Other paperboard	[12] 16,702	16,474	41,760	25,511	17,404	21,983	24,270	37,502	35,713
Fiber insulation board	26,794	19,535	14,548	7,175	7,252	25,951	17,649	27,789	18,052
Wallboard	4,084	8,469	14,864	2,668	5,371	19,348	8,903	13,340	17,582
Paper products, total[13]	44,636	50,666	65,144	65,213	60,308	62,491	88,250	121,630	101,881
Surface-coated paper	5,294	7,076	10,346	9,151	16,443	13,178	16,008	22,091	12,509
Toilet paper	5,760	5,268	8,699	9,594	6,103	5,852	7,808	7,684	7,284
Paper towels and napkins	2,025	2,980	3,026	1,840	1,650	2,018	2,078	2,042	1,908
Filing folders, index cards and other office forms	623	610	788	1,328	1,304	1,349	1,469	1,756	1,934
Papeteries	165	140	189	48	41	185	278	411	56
Wallpaper	779	668	729	339	290	757	1,077	636	91
Shipping sacks	[5]	2,609	4,371	5,324	5,604	8,796	9,355	21,459	22,826
Paper bags	[14] 10,160	6,563	6,259	4,443	2,955	3,711	5,742	9,630	6,898
Shipping containers	[1]	5,404	9,323	9,236	4,966	2,878	7,765	9,547	9,030
Boxes and cartons	[15] 6,928	4,283	3,235	7,417	3,756	2,195	4,500	6,988	5,209
Envelopes	481	539	729	570	585	742	1,283	1,217	863
Cash register and adding machine paper	2,230	2,755	829	1,517	1,404	1,163	2,007	4,459	4,113
Other paper and paper products	10,191	11,771	16,621	14,406	15,205	19,667	28,880	33,710	29,169

[1] Not shown separately.
[2] Includes rayon and special chemical grades.
[3] Included under "other wood pulp."
[4] Includes bleached and unbleached sulphate pulps.
[5] Includes bleached sulphate pulp.
[6] Figures for November 11-December 31, 1941, incl.
[7] Includes cellophane, glassine, vegetable parchment, etc.
[8] Includes bag paper and shipping sack paper.
[9] Includes thin paper other than cigarette, and sanitary paper, except toilet paper.
[10] Includes cigarette paper.
[11] Includes cigarette paper, Jan. 1-Nov. 10, 1941, incl.
[12] Includes kraft container board.
[13] Does not include vulcanized fiber.
[14] Includes heavy shipping sack type bags.
[15] Includes heavy fiber shipping containers.

Conversion factors derived from reported gross shipping weights.—
Fiber insulation board—1 sq. ft. = 0.87 lbs.
Wallboard—1 sq. ft. = 0.65 lbs.
Wallpaper—1 roll = 1.04 lbs.
Other paper and paper products—$380 = 1 ton.

Source: Prepared by Pulp and Paper Section, Forest Products Division, Office of Domestic Commerce based up on data from the Forest Products Branch, Office of International Trade, and the Bureau of the Census, U. S. Department of Commerce.

U. S. Imports of Paper, Paperboard and Paper Products

1937-1948

(In short tons, except where otherwise indicated)

Item	1937	1939	1941	1943	1944	1945	1946	1947	1948
Paperboard, and paper products, total	3,412,409	2,687,484	3,123,490	2,720,906	2,576,277	2,753,211	3,625,422	4,120,917	4,580,746
Paper and paperboard total	3,401,154	2,682,856	3,056,066	2,717,614	2,573,957	2,751,214	3,621,714	4,115,905	4,574,283
Paper, total	3,362,785	2,654,440	3,019,279	2,663,559	2,522,071	2,700,348	3,579,790	4,056,046	4,449,273
Newsprint	3,317,024	2,615,128	2,982,375	2,637,429	2,491,452	2,668,799	3,490,280	3,957,327	4,395,079
Printing paper, uncoated	15,407	13,408	28,474	23,329	27,246	29,655	81,037	74,401	83,430
Fine paper, total	10,399	9,808	2,741	637	389	397	441	682	631
Writing paper	594	380	128	62	102	70	46	90	120
Cover paper	[1]	.....	.....	10	.....	[1]	1	[1]	2
Bristols	78	74	2	.....	[1]	1	11	2	17
Thin paper	9,630	9,292	2,586	519	251	304	362	512	434
Other fine paper	97	62	25	46	36	22	21	78	58
Wrapping, bag, and converting paper, total	18,033	14,955	4,490	951	2,100	792	7,039	22,098	18,433
Greaseproof	504	223	4	3	6	3	40	71	33
Vegetable parchment	226	117	5	2	.....	.....	11	8	15
Kraft wrapping[2]	16,611	12,735	2,269	734	689	29	5,923	10,936	10,634
Wrapping, except kraft[2]	692	1,880	2,212	212	1,405	760	1,065	11,083	7,751
Tissue and crepe paper	109	55	76	131	84	105	114	923	1,283
Absorbent paper	933	542	287	43	54	34	19	47	110
Building paper	880	544	836	1,039	746	566	860	568	307
Paperboard, total	38,369	28,416	36,787	54,055	51,886	50,866	41,924	59,859	75,010
Kraft container board	32	10	275	2,297	475	.....	.....	.....	604
Other container and boxboard	2,123	388	.....	1,662	1	[1]	10	2,745	25
Other paperboard	17,015	12,083	12,593	20,152	20,973	21,731	13,692	24,306	44,503
Fiber insulation board	[1]	3,731	3,250	1,595	2,049	1,172	653	1,300	191
Wallboard	19,199	12,204	20,669	28,349	28,388	27,963	27,569	31,508	29,687
Paper products, total	11,255	4,628	67,424	3,292	2,320	1,997	3,708	5,012	6,463
Papeteries	143	57	4	20	3	4	36	46	38
Surface-coated papers	878	324	32	19	25	34	13	31	32
Uncoated papers, decorated or covered with a design, etc.	11	17	[1]	.....	.....	.....	4	5	7
Wallpaper	3,374	241	144	30	27	77	1,285	1,435	1,259
Decalcomania paper	389	464	702	328	483	536	784	922	957
Boxes of paper, papier-mache, or paperboard (not covered or lined)	109	167	104	157	425	274	352	234	297
Boxes of paper, papier-mache, or wood (covered or lined)	327	145	68	22	46	[3]	71	16	27
Manufactures of papier-mache, n.s.p.f.	187	141	17	2	[3]	[3]	16	21	51
Manufactures of pulp, n.s.p.f.	34	16	28	43	36	49	48	65	52
Bags and articles of surface-coated, parchment, or similar papers	231	133	59	58	33	10	33	77	63
Albums, photographs, autograph, scrap, etc.	9	5	2	[1]	[1]	1	2	[1]	1
Envelopes	12	8	5	6	15	188	101	24	38
Jacquard designs	[1]	[1]	[1]	[1]	[1]	.....	.....	[1]	[1]
Gummed paper, n.s.p.f.	[1]	1	[1]	[1]	[1]	.....	.....	2	[1]
Tubes for holding yarn and thread	283	163	.....	.....	[1]	[1]	.....	[1]	.....
Wall pockets of paper, papier-mache, etc.	122	28	3	.....	.....	.....	4	.....	43
Ribbon flycatchers	272	273	8	117	56	106	77	103	9
Masks of paper, pulp or papier-mache	63	48	5	[1]	[1]	.....	[1]	4	[1]
Reinforced or cloth-lined paper	8	6	.....	1	.....	.....	.....	.....	[1]
Stencil paper, not mounted	41	31	1	3	[1]	[1]	.....	[1]	[1]
Papers, n.s.p.f.	2,172	943	65,534	1,578	832	226	283	968	652
Manufactures of paper, n.e.s.	2,590	1,417	708	908	336	437	599	1,059	2,937

[1] Not shown separately. [2] Less than one-half ton. [3] Includes bag Paper.

Conversion factors derived from reported gross shipping weights:—

Stereotype matrix mat or board (included under absorbent paper)—1,000 sq. ft. = 1.43 lbs.
Papeteries—$500 = 1 ton.
Boxes of paper, papier-mache, or paperboard (not covered or lined)—$140 = 1 ton.
Manufactures of papier-mache, n.s.p.f.—$2240 = 1 ton.
Manufactures of pulp, n.s.p.f.—$860 = 1 ton.
Albums, photograph, autograph, scrap, etc.—$3060 = 1 ton.
Jacquard designs on ruled paper, etc.—$94,000 = 1 ton (price includes cost of die).
Ribbon flycatchers—$840 = 1 ton.
Masks of paper, pulp, etc.—$760 = 1 ton.
Papers, n.s.p.f.—$80 = 1 ton.
Manufactures of paper, n.e.s.—$360 = 1 ton.
Wall pockets of paper, papier-mache, etc.—10,000 wall pockets = 1 ton.

Sources: Prepared by Pulp and Paper Section, Forest Products Division, Office of Domestic Commerce, based upon data from the Forest Products Branch, Office of International Trade, and the Bureau of the Census, U. S. Department of Commerce.

How Users Appraise the Market for Papers

Report released April 13 by Paper Committee, National Ass'n., Purchasing Agents, under supervision of Chairman T. A. Corcoran, Courier-Journal and Louisville Times Co., Louisville, Ky.

There are more indications this month of a general easing in the paper market. One buyer of foreign kraft tells of substantial price reductions he has had recently. Kraft for which he paid $10.05 per hundred pounds, c.i.f. Gulf ports in January, was reduced to $8.50 on March 4, and still further to $6.50 on March 24. There have been reports of several offerings of spot newsprint in New York at regular contract price.

Total production of paper in the United States in February averaged 93.4 percent of rated capacity, compared to 99.8 percent in February, 1948.

Wood Pulp

By H. L. WEBER
Fiberboard Products, Inc.
San Francisco, Calif.

Since our last report, the Scandinavian pulp shippers have made substantial reductions in prices but, even taking these into consideration, their present prices are, in general, still higher than domestic prices for corresponding grades.

These reductions in prices, apparently, did not bring the flood of orders that the Scandinavian producers had hoped for, and there are already rumors that further reductions—bringing the foreign prices into line with domestic pulp—might be made at about the opening of the shipping season.

There has been some small falling off in consumption, during the last thirty days, but very little change in the inventory position throughout the industry.

Supply is still adequate in all grades.

Kraft Paper

By T. H. TREADWELL
W. C. Ritchie & Co.
Chicago, Ill.

There has been no marked change in the kraft paper market. Supply appears to be adequate with prompt deliveries obtainable.

Fine Papers

By E. E. McCULLEY
Courier-Journal Job Printing Co.
Louisville, Ky

There is no lack of extremely willing suppliers for any demand currently being made on the producers of fine papers. Each month sees improvements in sheet quality, adherence to specifications, cooperative assistance on customers' special problems and all of the other niceties that go with a buyers' market.

Stout efforts are being made to maintain the appearance of a strong market, pricewise. Concessions can be made, and are made in special cases where volume, continuity or particular adaptability to a mill's operation make the business attractive. Prices CAN BE discussed. Some members of the industry have discontinued the penalty on 16 pound bond. There seems no real need for such a penalty in most cases. What actually happened was that machines were speeded up and tonnage was never lost, in point of fact.

In a soft market, with strenuous efforts being made to preserve a price front that is vulnerable, at least to attractive tonnage, the removal of penalty differentials resting on such a doubtful base could have a wholesome effect.

The continued and growing discrimination in cash discounts is building up some unpleasantness. There is a very natural resentment on the part of buyers when allowed 1 percent on invoices but competitors in other cities are receiving 2 percent from the same source. The accumulated good will of many previous years is being compromised. Ample opportunity exists in most cities for buyers to send business out of town to houses giving 2 percent, but this seems to be a hard way of doing a rather easy job.

Book Paper

By RALPH N. BETTS
American Education Press, Inc.
Columbus, Ohio

"GPO Bids Awarded — Nearly All Prices Lower." This headline, which appeared in one of the leading paper trade journals, seems indicative of the book paper market at present. Prices have not dropped to the extent that the market structure is endangered. However, indications are that the market continues to become more competitive.

Prices of raw materials are also declining and, due to the competitive position of raw materials in this country, pulp imports from Norway, Sweden, and Finland, for the latter part of 1948, were reduced considerably, as compared to 1947.

The 1949 production ratio chart shows that 1949 is running slightly under 1948.

Deliveries are greatly improved over the last quarter of 1948.

Newsprint

By T. A. CORCORAN

For the first time in five years, total U.S. consumption of newsprint fell behind the same month of the previous year. This happened in February, when consumption was 1 percent less than in February, 1948. However, consideration should be given to the fact that February last year had 29 days with five Sundays.

Advertising linage in newspapers performed similarly, dropping 2.7 percent behind February, 1948 — the first time this has happened since June, 1945.

Total U.S. *consumption* in February amounted to 390,827 tons in February — 1 percent down from February, 1948. For two months of this year it totaled 811,930 tons — an increase of 5.5 percent over the corresponding period of last year.

Supply available to U. S. users in February amounted to 424,153 tons — an increase of 11 percent over the same month last year. For two months the increase over last year was 11.6 percent.

North American *stocks* totaled 830,674 tons at the end of February — an increase of 54,267 tons during the

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month. The increase over the same date a year ago was 163,876 tons.

Boxboard

By STUART EDGERTON
United States Rubber Co.
New York City

The production of boxboard continues at a level which assures all consumers a sufficient supply for the foreseeable future. The demand seems to be holding up fairly well, but there must be some surplus in the supply or some slackening in demand, because board is being offered at lower prices. This would indicate that suppliers were looking for business, in order to keep the mills operating. Perhaps the manufacturers are anticipating lower material costs, and a reference to other sections of this report may bear this out. There does not appear to be any change in the quality of board now being offered.

Paper Containers

By LEE R. FORKER
Quaker Stock Oil Ref'g Corp.
Oil City, Pa.

With declining demand, adequate supplies are now available for all types of paper containers, including solid fibreboard boxes, corrugated paper boxes, folding cartons, paper tubes, drums, and cans. Improved quality and quick delivery service, at declining prices, are available.

Frozen food packages, primarily constructed of wax-treated paper, are in large demand in certain sections of the country and the supply appears to be adequate.

With prompt delivery service now in effect, many buyers are no longer scheduling anticipated demands, unless protected on declines in prices and requirements. With the widespread uncertainty for the future, inventories are declining, and firm commitments are on the basis of currently known specific needs.

Our forecast on paper containers is that they will continue to reflect the general economic demand for all consumer goods, and that there will be an adequate supply to satisfy the demand for better quality containers, at a generally declining cost.

West Coast Conditions

By HORACE DUCKENFIELD
Metropolitan Life Insurance Co.
San Francisco, Calif.

The consensus among local distributors is that almost anything ordered in the line of paper is procurable and, by taking a little time to investigate, it is possible to obtain lower prices.

Practically everything is available in good quantity in local stocks. Stocks at the mills, too, seem to be adequate; so, prices are not as strong as they have been.

The situation on bags is very satisfactory but that cannot be said of kraft wrapping paper. There does not seem to be much overage in kraft wrapping paper items.

All manufacturers seems to have reached a very small backlog of orders, so that on any specialties required they can make and ship in a very short time. There are reports that some plants are not working the full week.

With the exception perhaps of cellophane, which might be considered slightly short in supply, mainly because of the limited number of local manufacturers, everything seems to be fairly plentiful and available.

Canadian Conditions

By J. F. STEPHENSON
Kraft Containers, Ltd.
Hamilton, Canada

The Canadian paper situation is feeling the slight recession in certain lines. On other stocks, a slight increase in demand is being experienced by some mills. It is very difficult to give an accurate summary of our conditions, with such conflicting reports. The only fair conclusion that can be reached is that backlogs are nearly all gone, quotas have been eliminated, and, unless demand improves over the next few weeks, many mills will go on short time.

All mills are working very hard in research departments, improving and developing products and creating new uses for them. The results they achieve will have a definite bearing on future production. With costs remaining high and labor settling down, purchasers would be wise carefully to size up requirements and decide what constitutes a fair inventory to carry. Don't gamble on a break in the market, because an upsweep in demand may cause a shortage when the fruit and canning industries get into full production.

250 Park Ave. Lease

NEW YORK — The Kimberly-Clark Corp., of Neenah, Wis., has taken a long lease on the greater portion of the 13th floor at 250 Park avenue.

The space involved is part of the area which the Crowell-Collier Publishing Co. will give up when it moves into its new building under construction at Fifth avenue and Fifty-first street.

Kimberly-Clark opened offices in New York in 1915, and since 1929 has been in the Chanin Building. As in the past, its associated companies, Spruce Falls Power & Paper Co. and International Cellucotton Products Co., will share the quarters on Park avenue.

Scandal Pays Off

ROCHESTER, N.Y.—After last year's scandals over forged export licenses, the Todd Co., Inc., fell into a nice business converting the paper that the present-day license uses. Todd now also has its own official license to sell some of its machinery abroad.

Experimental Forest

SHELTON-MASON, Wash.—A new experimental forest in western hemlock second-growth has been established by execution of a cooperative lease agreement between the St. Regis Paper Co., and the Pacific Northwest forest and range experiment station.

The tract of young timber is along the Olympic Highway, ten miles north of Hoquiam on land owned by St. Regis. It was cut over years ago and now is in various stages of producing a second timber crop. Some is ready for another harvest. Under the agreement, which anticipates a cooperative 20-year program of forest management research in silvicultural methods, the U.S. forest service will prepare working plans and lay out experimental cuttings on company lands, analyze and report on results.

Vice president DeLong of St. Regis and director Hall of the Forest Service stated that findings, although specifically applicable to St. Regis lands, will be made available for the use of other timberland owners.

$2,105 Suggestion

DALTON, Mass.—Charles B. Snyder, 26-year-old Crane & Co. employe, is $2,105 richer as the result of an award he has received from the company on April 5 for his suggestion involving an improved method of drying paper. The award is the largest ever made by a Berkshire County paper mill for an employe suggestion.

Employed as a loftman at Crane's Government Mill since 1941, the suggestion was the first Mr. Snyder had ever submitted.

In the ten years the suggestion system has been in operation at the Crane mill, 2,350 suggestions have been received and more than half were accepted, a company official said. Mr. Snyder's suggestion, they added, "will substantially reduce spoilage."

50 Years With Ruberoid

ERIE, Pa.—Peter H. Fischer, was honored April 4 by the Ruberoid Co., for having completed 50 years of continuous service with the firm. At an informal gathering Mr. Fischer was presented with a gift of U.S. Savings Bonds and a parchment scroll.

Attending were A. A. Wild, superintendent of the 16th street plant; O. C. Hall, superintendent of the Lake plant; W. R. Peterson, sales manager of the Erie District; P. L. Ahlberg, personnel manager; Lawrence Bush, president; Basil Whipple, secretary of the Erie Local, IBPM, and Mr. Fischer.

Heads NAM Committee

ERIE, Pa. — Bertram E. Claridge, vice-president of the Hammermill Paper Co., has been appointed to the newly-created committee on timber, soil and water conservation of the National Ass'n of Manufacturers.

NEW PENNSALT DRUM

A new composite fiber container, the Leverpak Drum, designed to insure the maintenance of high quality through extended storage periods, has been adopted by the special chemicals division of the Pennsylvania Salt Mfg. Co., Philadelphia, for its corrosion-resistant synthetic resin-type cement powders. . . . The drum is manufactured by the Container Co. division of the Continental Can Company, Inc. . . . The inside of the drum is coated with plastic wax. This, in turn, is protected by a polyethylene bag liner .002 of an inch thick. The cement is poured into the bag. An airtight condition is obtained by a lever lock device that clamps the metal top, also covered with polyethylene, to the drum. Pennsalt is using these drums in 15-gallon and 41-gallon sizes.

AMERICAN PAPER AND PULP ASSOCIATION'S PRODUCTION RATIO REPORT*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1949		Corresponding Weeks—1948	
February 26	90.6	February 28	102.1
March 5	90.6	March 6	99.9
March 12	91.5	March 13	100.9
March 19	89.7	March 20	101.2
March 26 (Revised)	87.5	March 27	98.2
April 2	*87.4	April 3	*100.0

* Capacity in Tons—180,061. * Capacity in Tons—174,668.

COMPARATIVE MONTHLY SUMMARIES

1948						1949	
		May	100.5	Oct.	99.1		
Jan.	100.1	June	95.7	Nov.	97.1	Jan.	94.6
Feb.	99.8	July	85.3	Dec.	87.1	Feb.	92.8
Mar.	100.8	Aug.	96.8			Mar.	‡89.3
Apr.	100.8	Sept.	91.8	Year Avg.	96.2		

‡ Preliminary Ratios.

COMPARATIVE YEARLY SUMMARIES

	1942	1943	1944	1945	1946	1947	1948	1949
Year to Date	103.3	88.7	88.3	88.3	99.1	105.1	100.5	92.3
Year Average	90.4	87.8	88.1	89.4	101.1	104.3	96.2	

PAPERBOARD OPERATING RATIOS†

Current Weeks—1949		Corresponding Weeks—1948	
February 26	80	February 28	101
March 5	79	March 6	104
March 12	80	March 13	102
March 19	81	March 20	104
March 26	80	March 27	104
April 2	75	April 3	98

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1948	99	100	102	102	100	94	81	92	91	96	94	84	95
1949	88	85	79										

* All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Association.

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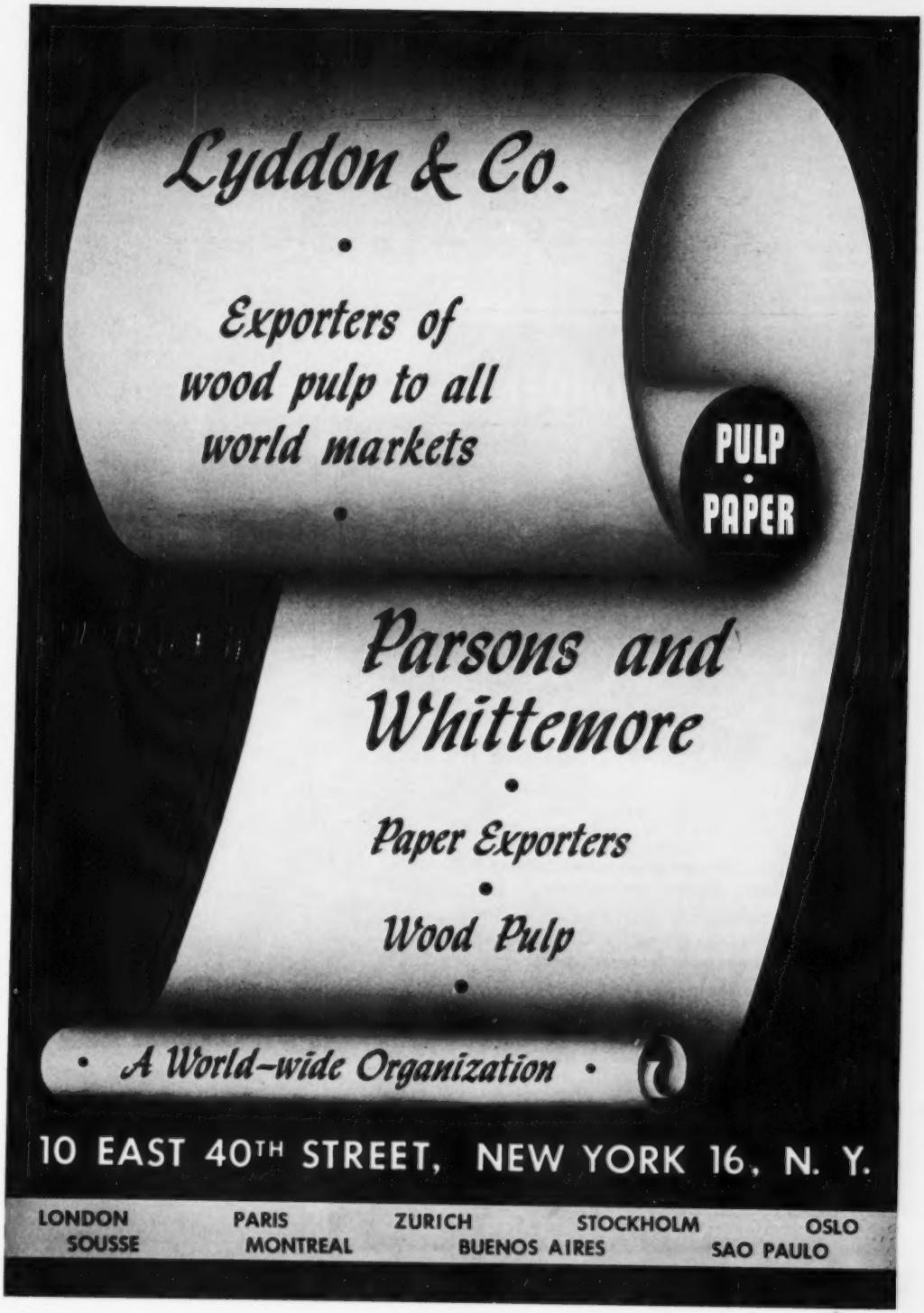
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Obituary

Michael Scarlatelli, Sr., 62, president of the Kenhue Paper Box Co., Newark, N. J., died at his summer home in Ringwood, N. J., on March 31. Surviving him are six sons, Carmine, Joseph, Eugene, Robert, Roland and Michael, Jr.; four daughters, Mrs. Catherine Pietropinto, Mrs. Tina Quartarolo; Mrs. Lee Violante and Miss Flora Scarlatelli; a brother, Anthony, and a sister, Mrs. Gertrude DeTore.

Arthur S. Cosler, 66, head of the Paper & Pulp Group, EssIN-GHQ-SCAP, Tokyo, Japan, died in that city on March 15. Interment was in Yokahoma. Mr. Cosler had been associated in past years with the Columbia Paper Co., Bristol and Bueno Vista, Va.; Roanoke Rapids Pulp & Paper Co., Roanoke Rapids, N. C.; York Haven Paper Co., York Haven, Pa.; Marathon Paper Mills Co., Rothschild, Wis.; Texas Gulf Sulfur Co., and Bauer Bros. Co., Springfield, Ohio, serving the above companies in capacities ranging from chief chemist to pulp mill superintendent to sales engineer to technical director. In 1946-47, Mr. Cosler was in charge of the Austrian Pulp & Paper Industry, American Zone, as chief, Paper Industry Section, USFA, with offices in Vienna, Austria. Surviving are his widow, Mrs. Frances Phipps Cosler; two sons, Arthur S. and McKinney P.; a brother, John T.; and a sister, Mrs. Oscar E. Thorp.

Raymond N. McAdams, 65, former secretary of the Hercules Powder Co., died of a heart ailment at the Delaware Hospital on April 9. Mr. McAdams joined Hercules at the time of its organization in 1913 as chief clerk of the works accounting division. He was named assistant treasurer of the company in 1926, and secretary in 1941. He retired in March, 1948. Surviving are his widow, Mrs. Mary Pennock Taylor McAdams; a daughter, Mrs. Henry A. Mahaffy; and a brother, James B. MacAdams.

Charles W. Callaghan, 83, former owner of the Union Paper Co., later taken over by the Zellerbach Paper Co., died in Providence Hospital, Oakland, Calif., on April 4. Surviving are his widow; two sons, Rear Adm. William M. Callaghan and Charles Wheeler Callaghan; a daughter, Mrs. Jane Costello; two brothers, Arthur V. and Daniel J.; two sisters, Mrs. James J. Raby (widow of Admiral James J. Raby) and Miss Vevette Callaghan.

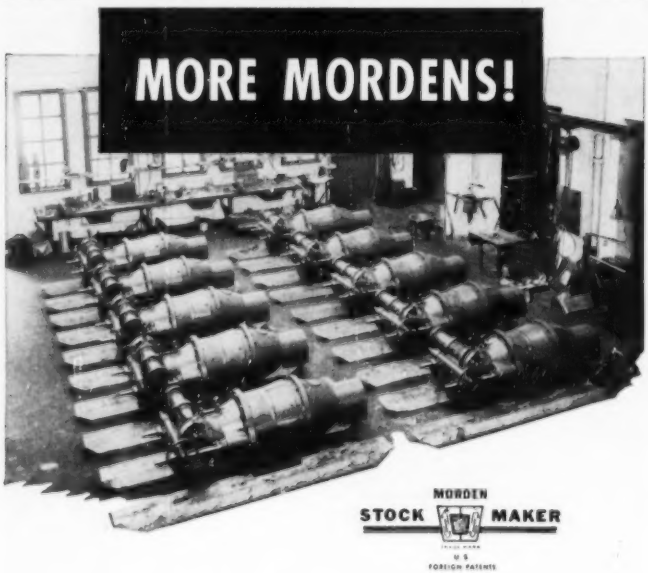
George E. Freeman, 73, a retired employe of the Riegel Paper Corp., died at his home in Warren Glen, N.J., on April 8. Surviving him are his widow, Mrs. Frances Graves Freeman; a son, Irvin; two daughters, Miss Bessie Freeman and Mrs. Rachel Andrews; and a sister, Mrs. Jennie Wilson.

Joseph M. Cochran, 77, former general manager of the Cochran Box Factory, Lockport, N. Y., died at his home in Buffalo, N. Y., on April 2. Mr. Cochran joined the firm, founded by his father, in 1912, and served as general manager until his retirement in 1924.

Charles Benjamin Clark, 66, retired president of the Nicolet Paper Co., DePere, Wis., and of the Riverside Paper Corp., Appleton, Wis., died of a heart attack on April 6 while playing golf at the Palm Beach Golf Club, Palm Beach, Fla.

Herman A. Krenkel, 71, former general superintendent of the Niagara Falls, N. Y., Mill 1 of the Kimberly-Clark Corp., died suddenly at his home in that city on April 3. Mr. Krenkel joined the firm in 1892 and retired in 1940.

Bertram W. Harwood of Wethersfield, Conn., manager and a director of John Carter & Co., Hartford, Conn., died in Hartford Hospital on April 6. Surviving are his widow, a son and two brothers.



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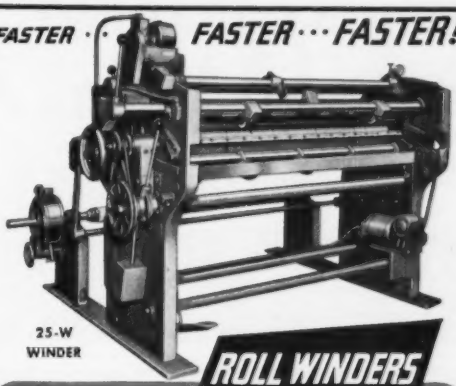

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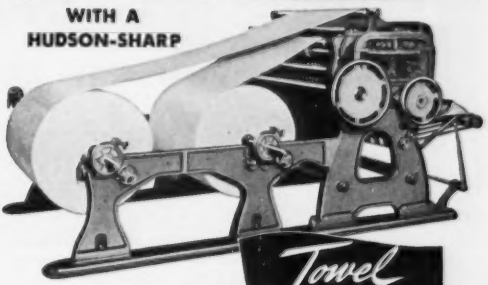

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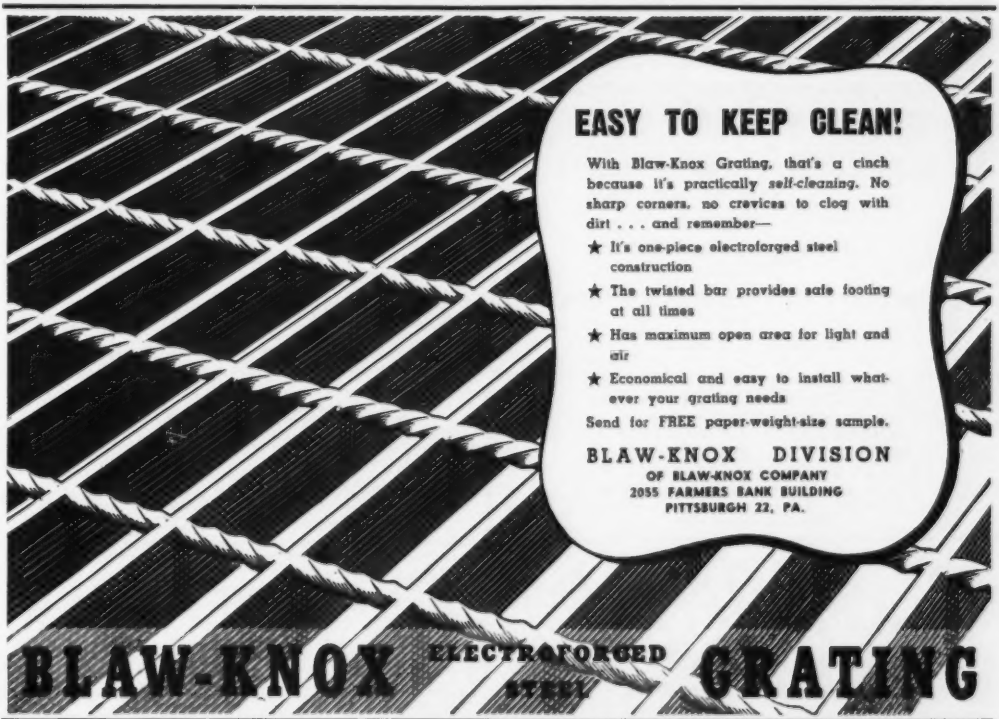

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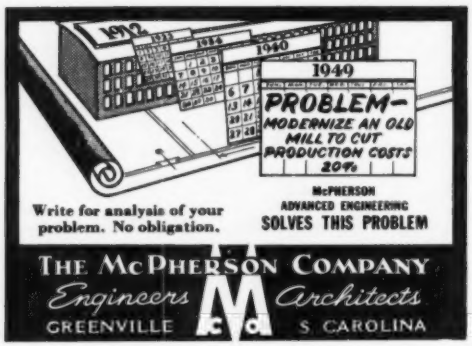

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A LINE OF MACHINES YOU CAN DEPEND ON—

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Paper Towel, Toilet Tissue — Facial Tissue, Paper Napkin — Wax Paper, Paper Table Cover
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We build considerable special machinery to do specific work to meet a customer's particular requirements.

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For Your Engraving Needs Use
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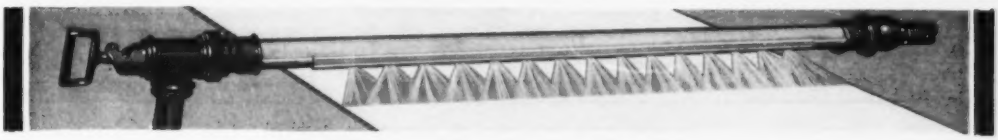

ANNOUNCING—Clark and Vicario Company, 683 3rd Ave., New York 17, N. Y. is now our representative for Sandusky Shower Pipes in the following territory: East of the Rocky Mountains with the exception of Maine, Vermont, New Hampshire, Massachusetts, Rhode Island, and Connecticut East of the Connecticut River.

★ CHIEF SANDUSKY *CENTRIFUGAL CASTINGS* ★

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CLEARING HOUSE

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HELP WANTED

HELP WANTED

SUPERINTENDENT

ONCE-IN-A-LIFETIME OPPORTUNITY with a Southern One-machine Folding Box Board Mill.

Must be able to produce high quality boards, is cost and production conscious, and not afraid of hard work. To such a man is offered a starting salary of **$9,000.00** a year plus an attractive bonus-arrangement, and a secure future with a fast growing organization.

Give full details in first letter, which will be held in strict confidence. Box 49-110 care Paper Trade Journal. A-14

PRODUCTION MANAGER — 40-45 years; paper mill experience preferred; college education or equivalent. Paper converters, plant in Metropolitan New York. Resume and salary. Box 49-196 care Paper Trade Journal. A-14

Modern progressive mill in metropolitan area desires:

1—First Class Electrician

Must be familiar with DC controls, electronic equipment and sectional drives.

Able to read and work to blue prints.

Paper Mill experience preferred.

1—First Class Combination Pipe Fitter and Welder

Must be able to read blue prints and weld high-pressure steam lines.

Paper mill experience preferred.

Give complete experience, background and references in first letter. Address reply to Box 49-193, care Paper Trade Journal. A-21

MACHINE TENDERS first class for fast running fourdrinier Yankee Machines on facial tissue. Mill located in upstate New York. Good wages and working conditions. Only first class men need apply. Address Box 49-185 care Paper Trade Journal. A-14

SALARIED POSITIONS $3,500—$35,000

If you are considering a new connection communicate with the undersigned. We offer the original personal employment service (39 years recognized standing and reputation). The procedure, of highest ethical standards, is individualized to your personal requirements and develops overtures without initiative on your part. Your identity covered and present position protected. Send only name and address for details.

R. W. BIXBY, INC.
117 Dun Bldg., Buffalo 2, N. Y.

TF

WANTED
PAPER RESEARCH CHEMIST

to supervise group of 6 to 8 men on development of paper products in research laboratory of upper midwest manufacturer of bleached groundwood, sulphite and kraft printing and converting papers. Must be well grounded in paper chemistry and manufacturing processes with development experience in these fields. Prefer man 30 to 40 years old with a good knowledge of book grade bleached papers and enamel grade coated papers. In reply give personal history, training, experience and salary expected.

Address Box 49-52, care Paper Trade Journal. TF

WANTED—MECHANICAL ENGINEER to assist plant manager, Multiwall Bag Plant and Converting Mill in Virginia. Company in business 50 years. Must have had 10 years experience in kraft mill or bag plant. Replies confidential. State details and salary. Box 49-202, care Paper Trade Journal. A-21

MEN WANTED
Positions Open

Night superintendent for Northern mill making white and colored sulphite writing and specialty papers; must be good on colors and capable in beater and machine rooms. General superintendent for group of mills producing newsprint, paper board, tissues and specialty papers.

Chemist with technical education and at least three years' experience on carbon papers. Several other chemists and chemical engineers, one with Ph.D. Degree. Comptroller for Northern mill.

Mechanical engineers, master mechanics and chief power plant engineer; industrial accountant; estimator for carton manufacturing plant; paper salesman for New England, Northern and Eastern States; beater engineer, machine tenders and back tenders.

We invite correspondence (confidential) with mills seeking executives and with executives seeking new positions.

Charles P. Raymond Service, Inc.
294 Washington St., Boston 8, Mass.

A-14

WANTED
DEVELOPMENT
ENGINEER

Graduate engineer for development work on corrugated containers and container testing at large corrugated box plant in Southeast. Several years experience in design, evaluation, and manufacture of corrugated containers required. Box 49-179, care Paper Trade Journal. M-12

SUPERINTENDENT WANTED for midwest mill making Folding Boxboards, Specialty Boards, Liner and Corrugating Medium. All replies kept strictly confidential. Address Box 49-183 care Paper Trade Journal. A-14

WANTED—Superintendent, middle age, for small midwestern paper mill—immediate employment. Must be thoroughly familiar with tub-sizing and specialty papers. Address Box 49-194 care Paper Trade Journal. A-21

SITUATIONS WANTED

TECHNICALLY TRAINED EXECUTIVE: Broad experience with kraft and sulfite pulps; specialty papers and paper board. Successful background in research, production development, production and management of operations and sales. Address Box No. 49-157 care Paper Trade Journal. A-14

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HELP WANTED—10c a word. Double rate for heavy face type. Minimum charge $2.50.

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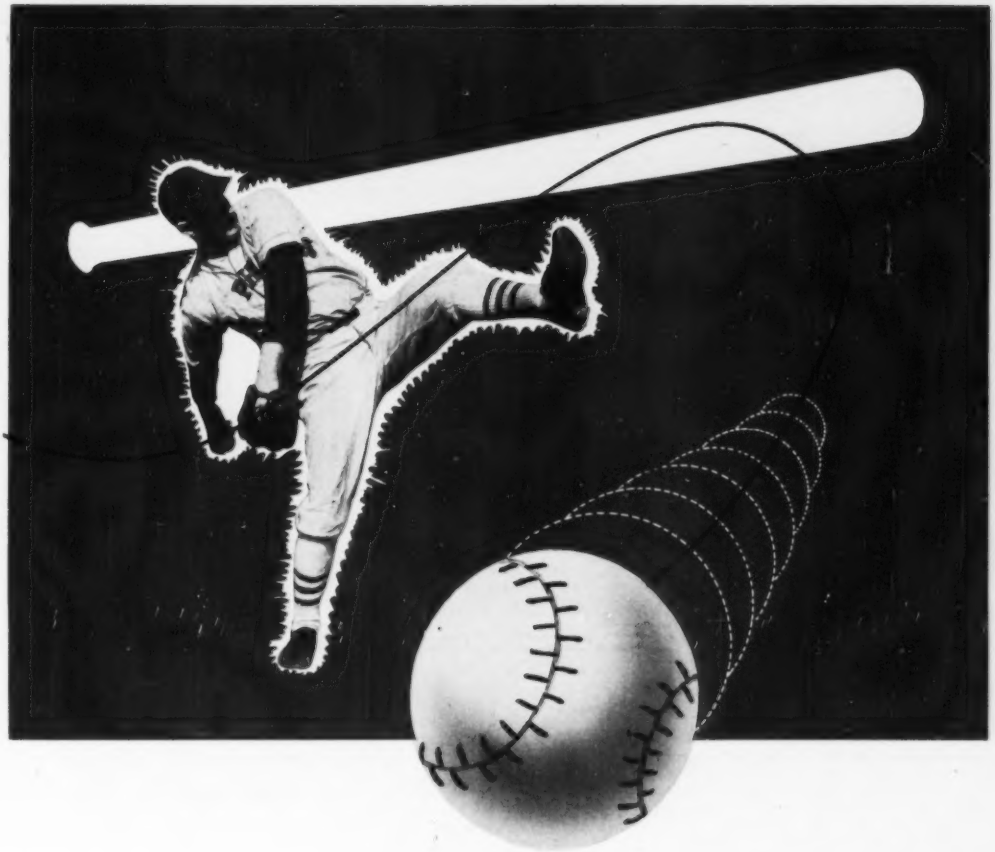
OPPORTUNITIES—10c a word. Double rate for heavy face type. Minimum charge $2.50.

Classified advertising space may also be purchased at $5.00 per single column inch. All classified advertisements are payable in advance. If box number is used—70 cents additional.

Address replies to advertisements appearing under Box Numbers in care of PAPER TRADE JOURNAL, 15 West 47th Street, New York 19, N. Y.



Eye on the Ball

Don't let a wide sweeping curve throw you when contracting for a paper machine. Keep your eye on the ball—not on the shipping date but on the date you start making paper.

Black-Clawson maintains that to erect, check, and match-mark may somewhat delay shipment but greatly reduce the erection time—end result a lot of time and trouble saved.

Operating on that principle, here's the start-up record of a few B-C machines shipped since the war.

- Fernstrom machine started as slick as a whistle.
- Alabama machine made salable paper on second roll.
- Atenquique machine made good right off the bat.
- Angelus machine developed no start-up troubles.

There's the start-up history of four. If interested, will name more.

You may have installed a new machine in the past two or three years. If so, check your experience against that of mills listed above.

On your next machine, differentiate between the way station and the end of the line—between shipping and start-up dates.

Eye on the ball.

The Black-Clawson Co., Hamilton, Ohio

SHARTLE BROS. MACHINE COMPANY, MIDDLETOWN, OHIO — DILTS MACHINE WORKS, FULTON, NEW YORK

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Western Sales Office: Mayer Bldg., Portland, Oregon — Associate: ALEXANDER FLECK LIMITED, Ottawa, Canada

Black-Clawson

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PULP AND PAPER MILL MANAGER

YOUNG, TECHNICALLY TRAINED EXECUTIVE WITH TWENTY YEARS EXPERIENCE IN GROUNDWOOD, SULPHITE AND KRAFT SPECIALTIES, BOOK, TOILET AND FACIAL TISSUES AND TOWELING. KNOWLEDGE OF ALL PHASES OF PULP AND PAPER MANUFACTURING AND CONVERTING. DEMONSTRATED ABILITY TO REDUCE COSTS AND OPERATE EFFICIENTLY AND TO PLAN FOR FUTURE OPERATIONS. NOW AVAILABLE.
Address Box 49-198, care Paper Trade Journal. A-28

ASSISTANT to Plant or Utilities Engineer: EE, age 26, 27 months general paper mill, steam and hydroelectric experience. Address Box 49-186 care Paper Trade Journal. A-14

ENGINEER—MGR. 26 years experience in the pulp, paper and board industry in plant operating and engineering supervision. Extensive background of chemical and semi-chemical pulping. Production, maintenance, power and construction. Invites correspondence. Address Box 49-155 care Paper Trade Journal. A-14

PLANT MANAGER—Thorough experience in converting paper and boards; wants change to position offering better opportunity. Excellent production and labor relations background. Address Box 49-15 care Paper Trade Journal. A-28

ENVELOPES, SPECIALTY BAGS, PAPER CONVERTING SUPERVISOR. To the busy owner—if you are making too much money, or if you are in the hands of receivers —then you don't need my services. BUT—if your plant is too heavy, or, having high percentage of rejects, and can stand additional intelligent, economical and judicious administration, THEN YOU NEED MY SERVICES. Address Box 49-170 care Paper Trade Journal. A-21

CONVERTING SUPERINTENDENT—Age 36. Thoroughly experienced in roll and folded toilet tissue and towels, napkins and automatic labeling and wrapping. Best of references. Address Box 49-190 care Paper Trade Journal. A-14

A COMPETENT, converting Supervisor, with 25 years experience in all kinds of folding tissue and towels, desires permanent position. Will furnish the best of references. Address Box 49-191 care Paper Trade Journal. A-14

MECHANICAL ENGINEER—With extensive background in Kraft pulp and paper mills as engineer, superintendent and manager, manufacturing highest grades of pulp and papers, invites correspondence. Best of credentials from present and former associates in regards to integrity and ability. Address Box 49-192 care Paper Trade Journal. M-5

PLANT SUPERINTENDENT — Thorough knowledge of printing (all types) and paper bag converting, gained from many years in this field, from cellulose tissue and coated stock, to heavy weight and duplex. Have developed many special machines and improvements. Broad production management and personnel experience. Address Box 49-199 care Paper Trade Journal. A-21

SUPERINTENDENT—Age 39. Desires to make change. 21 years experience on high speed Fourdrinier with Yankee dryer machines making toilet tissue, facial, towel, twisting. Excellent qualifications for handling help. Can supply references. Address Box 49-189 care Paper Trade Journal. M-5

MASTER MECHANIC and Paper Maker. Vast amount of experience installing, operating and maintaining paper mill equipment. Excellent health. References. Address Box 49-188 care Paper Trade Journal. M-5

FOR SALE

FOR SALE—1—84" Langston Winder, in operating condition. Price $500.00. Address Box 49-195 care Paper Trade Journal. A-14

FOR SALE

1—48" wide, 4-color Waldron Aniline Printing Press.
1—90" Creping and Plasticizing Machine. Complete with Dryer Section, Rewind and AC Motor Equipment.
17—36" diam. x 74" face Dryers. Complete with gears, frames and bearings.
1—65" Martin Squeeze Roll Waxing Machine. For Water, Finish or Dry Waxing. Equipped with 3—16" diam. Bronze Cooling Drums. AC Motor Equipment.
1—Weber Cellophane Bag Machine—Model 2CN-247—With Motor Equipment.
1—60" Flocking machine complete with explosion proof motors, brushes, exhaust system, dryers, and rewind.
1—Practically new, late type Hudson Sharp Embosser with linen pattern. Rolls 50½" wide face. Steel roll 27¾" in circumference, equipped with 10 H.P., A.C. Westinghouse motor.
1—Brand new 30" Hudson-Sharp No. FE-10 Roller Bearing Embossing Machine, late type, Linen Design Rolls.
1—40" Kidder Model SL Slitter & Rewinders. Complete with ten sets of cutters and rewind shaft.
1—50" Camachine, Type 28, Model 3D. Duplex Rewind for 30" Maximum Rolls. Shear Type Slitters. "V" Belt Drive. No Motor. As good as new.
1—48" Inman Board Slitter and Rewinder. Rewinds 48" diameter rolls.
1—32" Johnstone TWELVE Slitter and Rewinder with sufficient knives to slit ¼". Score cut. Excellent condition.
Power Paper Cutters: 4 Seybold: 40"—10Z, 54" 20th Century, 54" Holyoke and 56" Dayton. 6 Oswego: 34", 38", 44", 50", 57" and 74". 2 Acme: 32" and 42". 1 White: 44". 1 S&W Undercut: 63".
1—30" Moore and White rotary sheet cutter equipped with M&W layboy.
1—115" Beloit Duplex Sheeter with Duplex Slitter.
1—84" Hamblet roller bearing new duplex sheet cutter, Model 28, complete with slitting attachment, six pairs of slitters. With new Hamblet 84" electrically driven duplex layboy and two roll backstands for 30" diameter rolls.
1—96" Clark Aiken anti-friction bearing Single Rotary Sheet Cutter with slitting attachment. Moore & White 5 partition Layboy and 6 roll double-deck backstands. Excellent condition.
1—104" Beloit Duplex Sheet Cutter, Equipped with duplex Shear Slitters and Fly Knives and two Reeves Drives.
1—140" Beloit Duplex Cutter & Slitter with two Reeves Drives.
1—New 100" Mamco layboy with single type tandem tape system with air delivery for one pile.
1—Erie Layboy, size 85" x 45".
1—74" Norwood 9 roll stack of Super Calenders. Complete with DC Motor equipment.
1—62" sixteen roll Norwood glassine stack of supercalenders. Complete with drive and motor equipment.
1—Five roll stack of Sandy Hill Calenders. 82" face. With weighting levers. Good condition.
1—Noble & Wood Mammoth Jr. Jordan direct connected to a 150 HP. Type H.R., 440 volt, 3 phase, 60 cycle 400 R.P.M., with 5 KW exciter, Westinghouse synchronous motor.
1—E. D. Jones Breaker Beater, 66" dia. roll with 61" face.
2—81" Dietz Toilet Paper Perforators. Sheets 4½ x 4½ and 4½ x 3 and paper towels perforated 7½" and 13½".
1—63" late type Dietz heavy type toilet & towel converter with combination cylinder Perforations 4½", 5", 7½", 12½" & 15". Friction rewind AC motor equipment.
1—Hickock Ruling Machine, 54" between rails, 48" blanket, has 3 beams and under lift, hand fed.
1—Sandusky Suction Couch roll. Overall face 82". Suction face 76". Diam. 14½". Complete with drive.
1—Napkin machine for cocktail napkins. Complete with scalloping dies.
1—36" Beck Sheet Cutter with 3 roll backstand and jogger delivery table.

GIBBS - BROWER COMPANY, INC.
21 East 40th St., New York 16, N. Y. A-14

ONE CECO BOX SEALER, with especially long feed and pressure unit. In excellent condition, subject to prior sale at the very low price of $1,000 f.o.b. Garwood, N. J. The General Cellulose Co., Inc., Garwood, N. J. A-21

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CORE PIPE

3" and 4" New Steel Pipe cut to length and slotted per specification.

ALTOONA PIPE & STEEL SUPPLY CO.
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POWER REAM CUTTERS

New 44" National Automatic Clamp Power Cutters, with A.C. motors — carried in stock, ready immediate shipment.

Also specializing in the NEW 57" National Hydraulic—just out. Send for illustrated circular on this wonderful smooth running machine. Not a single gear on it.

THOMAS W. HALL COMPANY, INC.
Stamford, Conn.
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Also rebuilt Sheeters, Slitters, and Rewinders.

FOR SALE

Paper Power Cutters; Slitters & Rewinders; Die Cutters; Printers; Scorers & Creasers; Gluers & Wrappers; Coaters; Laminators; Waxers; Stitchers; Brightwoods.

Write for latest bulletin listing available paper box & paper converting machinery. Get on our permanent mailing list for up-to-date inventory.

SOUTH WABASH ENGINEERING CO.
2929 So. Wabash Ave.
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A-14

FOR SALE

44" & 65" Paper Power Cutters, like new; Coaters; Waxers; Sheeters; Die Cutters; Printers; Slitters & Rewinders. Write for Price Bulletin #155 listing over 70 Paper Converting Machines. Priced exceptionally low.

South Wabash Engineering Co. Inc.
2937 S. Wabash
Chicago, Ill. TF

FOR SALE AND REMOVAL: Complete equipment in operating plant for the production of coated and printed paper specialties. Conversion to roll or sheet form. Includes waxer, coater, laminator, printing presses, winder and sheeter, complete with motors. For full particulars and prices address Gibbs-Brower Company, Inc., 21 E. 40th Street, N. Y. A-14

FOR SALE: N. J. Mounting Machines Models 57 & 58. 44" & 65" Paper Power Cutters; Fuchs & Lang 40" Coater; Beck Sheeters 36" & 55"; No. 3 Miehle 33x46; 22x39 & 70x78 Sheridan Die Cutters; 30" & 40" Slitters & Rewinders; 14x22, 20x30, 26x38 Thomson Die Cutters; No. 10 Babcock Die Cutters 55". Also complete Mounting & Finishing Division with machines like new. Write for listing and prices on these and other Paper Box and Paper Converting Machines. Selling out on pre-moving sale. Address Box 49-121 care Paper Trade Journal. A-28

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ROSS PAPER MACHINERY CO.

265 PASSAIC STREET
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PAPER MAKING EQUIPMENT

NEW, USED, REBUILT
PAPER AND PULP MACHINERY

1—Pusey & Jones 120" Ball Bearing Fourdrinier Paper Machine, 60" diameter dryers—suction press and suction couch—Spiral Bevel Gear Drives.
1—Pusey & Jones 82" Fourdrinier Machine Complete.
1—90" Yankee Fourdrinier Machine, complete with suction couch and suction press, including all auxiliaries.
1—7 cylinder 120" Board Machine, 82 Dryers, 42" diameter. Complete with all auxiliaries.
1—6 cylinder 132" Board Machine, 67 Dryers, 42" diameter. Complete with all auxiliaries.

BEATERS

1—750 lb. Horse Iron Tub. Roll 60"x40"
2—Valley Iron 750 lb. Iron Tub—Bronze filled.
1—Downingtown 2000 lb. Beater Roll—60" x 60" —with perforated back fall. Iron tub.
1—E.D. Jones 2000 lb. Beater Roll—67" x 69". Iron tub and bottom.
1—Downingtown 750 lb. iron tub.
1—Dayton—1500 lb. continuous breaker beater. Iron tub with rag catcher.

BLOWERS

1—American Sirocco Size 4
1—American Blowers 2300
1—American Blower #700
1—American Blower #780
3—Buffalo Forge Co. #24 Cast Iron Blowers

CALENDER ROLLS

6—116" face x 9½" diameter.
4—104" face x 9½" diameter.
32 Rolls-various sizes.

CALENDER STACKS

1—104" face 8 roll stack, with drive.
1—76" face 7 roll with drive.
1—76" face 3 roll with drive.
1—112" face 7 roll.

CONVEYOR

1—18½ ft long x 30" wide—with motor.

COUCH ROLLS—BRASS

1—104" face x 18" dia.
1—116" face x 18" dia.
1—100" face x 18" dia.
1—82" face x 19½" diameter.
3—94" face x 21¼" diameter.

COUCH ROLLS—RUBBER

1—110" face x 20" dia.—New.
1—130" face x 19" dia.
1—141" face x 21" dia.

CYLINDER MOLDS

4—IMPCO 10" diameter x 84" face.
3—38" diameter x 138" face Cylinder molds with vats, couches—ball bearing.
2—74" face x 36" diameter.
1—134" face x 36" diameter, with stainless steel shafts.
1—78" face x 30" diameter.

CYLINDERS AND VATS

2—138" face x 36" dia.—with vats, couch, complete.

DRIVES

1—8C. Reeves Drive. 40-50 h.p.

DRYERS

4—74" face x 28" diameter with gears.
3—143" face x 48" diameter.
3—124" face x 48" diameter.
4—80" face x 36" diameter.
1—77" face x 48" diameter—with gear.
1—64" face x 30" diameter.
6—78" face x 36" diameter, complete with 2 deck frames, gears, bearings and steam joints. Drives, line shaft and felt rolls are available.
1—78" face x 18" diameter with gears and bearings.
2—46" face x 24" diameter—chromium plated.
1—120" face x 18" diameter—Baby Dryer.
11—64½" face—36" diameter with 2 deck frames, gears and bearings.
3—63½" face—36" diameter—bearings and gears.
2—62½" face—36" diameter—bearings and gears.
6—96" face x 48" diameter.
55—126" face x 42" diameter.

EMBOSSER

1—Hudson Sharp 33" Embosser. Ball bearing. Complete with winder and drive.

EXTRACTOR ROLLS—VACUUM

1—Downingtown—64" face x 12" diameter with bearings & stand.

FLAT SCREENS

3—10 plate Sandy Hill.
1—Sandy Hill 8 plate—with scraper.
1—New Sandy Hill 12 plate, with wrappers and V-belt drive.
1—Montague 6 plate—ball bearing.

FOURDRINIER SECTIONS

1—P & J 136" x 80 ft. ball bearing. Complete from inlet to 22" diameter suction couch. Brass and Rubber covered table rolls. 6 Brass Suction Boxes operated at 1000' per minute.
1—M & W 82" x 49' complete with 3 suction boxes, shake, 3 section presses and size press.

HAMMERMILLS

1—American Hammermill—37" cast friction beaters reversed.

HEAD BOXES

1—118" Bronze Lead Lined. Bevel

INLETS

1—Voith Inlet for 151" wire with 39" slice. Complete, including drive.

JORDANS

1—Jones Standard—ball bearing direct connected to 150 h.p. G.E. 440 volt motor.
1—#3 Miami, for motor drive.
1—Jones Majestic, roller bearing—stainless steel fillings—for motor drive.
4—Jones Majestics with base and couplings—bronze filled, 2 sets of new bronze fillings
3—#3 Appleton with base and coupling—bronze filled.
1—Dilion Horse #3—direct connected 75 h.p. Stainless steel ½" fillings.
1—#4 Smith & Winchester—Ball bearings.

LABORATORY EQUIPMENT

1—12" 6 roll calender stack with Westinghouse 7½ h.p. motor.

MOTORS

1—Fairbanks Morse — 30 h.p. — 495 r.p.m. — 220/440/550
1—Reliance 25 h.p. ball bearing, 550 v., 3 phase, 60 cycle—1750 r.p.m.
1—General Electric 150 h.p.—440 v.—3 phase—60 cycle—880 r.p.m.

PRESS ROLLS

1—110" face x 19" diameter—rubber.
1—101" face x 18½" diameter—rubber
1—123½" face x 17½" diameter—rubber.
1—112" face x 19" diameter—rubber.
1—127" face x 17½" diameter—brass.
1—117" face x 24" dia.—Brass.
1—84" face x 20" dia.—Rubber.
1—118" face x 22" dia.—Rubber.
2—118" face x 21" dia.—Rubber.
1—147" face x 11¾" dia.—Rubber
1—74" face x 18" diameter—Rubber.
1—109" face x 17" diameter—Rubber.
1—130" face x 22" diameter—Brass.
1—102" face x 18" diameter—Rubber.
1—119" face x 17" diameter—Brass.
1—76" face x 10" diameter—Brass.
1—53" face x 14" diameter—Brass.
1—53" face x 12" diameter—Iron.
1—53" face x 10" diameter—Iron.
1—74" face x 16" diameter—Iron.
1—73" face x 14" diameter—Iron.
1—102" face x 18" diameter—Brass.

PULP EQUIPMENT

1—Jigger—1 deck—vibrating screen
1—Nitts & Merrill 217 Pulpwood chipper
1—5' Carthage Disc Barker
1—32" Carthage Ball Bearing Chipper—4 knife
2—New Stedman Disintegrators—58".

PULPERS

1—Bird Pulper
1—22 Lamson Pulpers

PUMPS

1—Worthington Monoblock—250 g.p.m.—130' head—direct connected to 15 h.p.—3500 r.p.m.—220/440 volts, totally enclosed, ball bearing motor.
1—Ingersoll Rand—80 g.p.m.—210' head—direct connected 7½ h.p.—220/440 volt—3 phase—60 cycle totally enclosed motor.
1—New Warren—all bronze, 30 g.p.m.—69' head —connected to 1½ h.p.—440 volt motor.
1—Ingersoll Rand 150 g.p.m.—250' head—connected to 5 h.p. motor—220/440 volt motor.
1—Worthington—2000 g.p.m.—250' head.
1—Worthington 3 x 3—300 g.p.m. 75' head—1750 r.p.m. Ball bearing for motor drive
1—Trench Marine ball bearing, 500 g.p.m.—800' head.

PUMPS—OPEN IMPELLER

1—Morris open impeller—9" suction—8" discharge —belt drives.
1—Morris Vertical Open Impeller 8 x 6—380 g.p.m. 3 percent stock—60' head—connected to G.E. 15 h. p. 220-440 volt 3 phase—60 cycle—1165 r.p.m.
1—New Gould—ball bearing—8" suction—4" discharge—700 g.p.m.—60' head. Requires 30 h.p. at 1750 r.p.m.
1—New Gould—ball bearing—8" suction—6" discharge—1500 g.p.m.—45' head. Requires 25 h.p. at 1150 r.p.m.
2—New Goulds—ball bearing—8" suction—6" discharge—1200 g.p.m.—60' head. Requires 30 h.p. at 1150 r.p.m.
1—New Gould—ball bearing—8" suction—6" discharge—1000 g.p.m. 40' head. Requires 20 h.p. at 1150 r.p.m.
1—New Gould 6" suction 4" discharge 500 g.p.m. 40' head. Requires 15 h.p. at 1750 r.p.m.
1—New Gould 4" suction 3" discharge 200 g.p.m. at 40' head. Requires 5 h.p. at 1750 r.p.m.

REDUCERS

1—D. O. Jones 5 h.p. vertical right angle 1200 r.p.m. input—14 output.

REELS

2—Beloit 110" two bowl Reel.
1—M & W 76" 2 bowl reel.
1—Beloit 132" two bowl upright reel.
1—Beloit 116" two bowl upright reel.

ROLLS

200 Assorted felt carrying.
96—Brass Chromium Plated. Ball Bearing. 60" face x 12" Diameter
11—Brass 129" face x 11" diameter.
1—Brass 140" face x 12" diameter.
1—Brass 136" face x 12" diameter.
1—Brass 128" face x 13" diameter—ball bearings.
2—18" diameter x 129" face with ball bearings and stands. Bored for steam.

ROTARY SCREENS

3—Jones Lathwalk—cylinder 94" face x 29" diameter.
1—22 Leith-walk-ball bearing.

SCREW PRESSES

3—Valley Voith Screw Presses Size 7A with new spare sets of plates.

SHEETERS

3—Hamblet 51" Single Knife with 6 roll back stands and motors.
1—Hamblet 51" Single Knife with 6 roll back stand and motor.
1—Beloit Duplex 104", complete with drive.
1—Hamblet Duplex—136".

SHREDDERS

3—Garrett Waldron Cutters — type F-11 — 30" knives. Used 30 days.

SLITTERS AND WINDERS

3—Pusey & Jones 100" high speed slitters and rewinders.
1—Cameron 52" type 6 Model 5A with friction tension.
1—Cameron 56" Model 6.
1—Cameron 60"—Model 6.
1—New 208" Camachine 20. Operates up to 5000' per minute.

STUFF PUMPS

1—Beloit 10 x 20 triplex—with motors and chain drives.

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Millspaugh 22" diameter x 138½" suction face
1—Millspaugh 22" diameter x 138" drilled face.
1—Beloit 102" drilled face x 22" diameter. Anti friction bearings.

SUPER CALENDERS

3—7 roll 62" face.
1—7 roll 68" face.
1—7 roll 56" face.

TRIMMERS

1—56" Underslung Trimmer
1—Goybold 84" with motors.

VACUUM PUMPS

2—Nash—22H.

YANKEE DRYERS

1—Beloit 10' diameter x 132" face with stands, gears, bearings and drive.
1—Beloit 12' diameter x 132" face with stands, gears, bearings and drive.

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3—48" Hamblet

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1—12 ft. x 100" Yankee
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1—Wire 90" x 110" anti friction with 12" suction couch and three sets presses, rolls 29 x 102".
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1—No. 5 Miami, anti friction
1—No. 2 Dilion
3—Noble & Wood Pony

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1—36 x 122"
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1—7 x 10 Gould triplex

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Flat screens, 3 to 10 plate
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SLITTERS
1—224" Rice Barton
1—100" Moore & White four drum
1—100" Warren two drum
1—132" and one 120" Pusey & Jones two drum
1—112" Kidder
1—82" Langston
1—98" Cameron
1—82" 44 W Cameron

SUCTION ROLLS
1—39 x 102" Couch
1—62 x 100" Press
1—32 x 100" Couch
1—18 x 142" Couch
1—18 x 92" Couch

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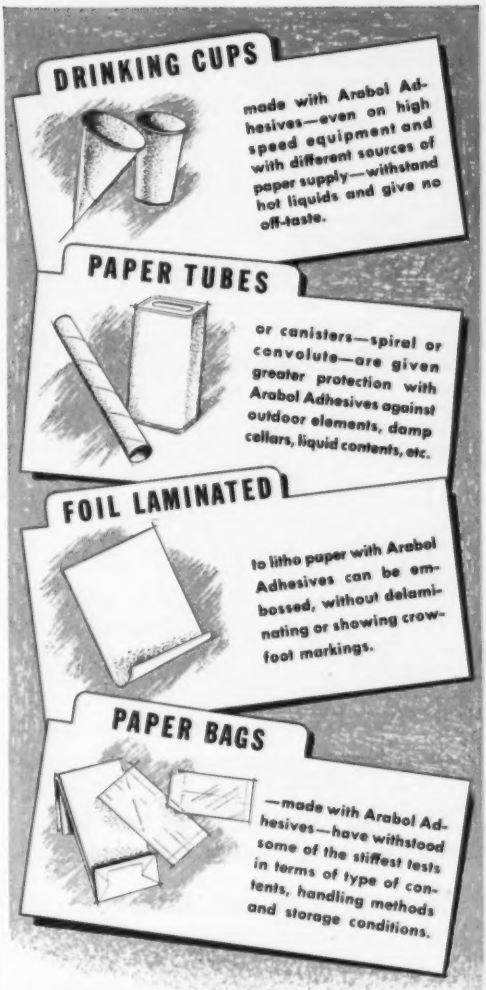
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National Tube Co.

Dampeners
Perkins & Son, Inc., B. F.
Valley Iron Works Co.

easphalting Chemicals
Adell Chemical Company

eckle Webbing
Williams-Gray Co.

e-Inking
Adell Chemical Company
Dilts Machine Works
General Dyestuff Corp.
Kinsley Chemical Co.
Roderick O'Donoghue
Shartle Brothers Machine Co

Deinking Chemicals
Adell Chemical Company
E. I. Du Pont De Nemours & Co., Inc., Pigments Dept.
General Dyestuff Corp.
Kinsley Chemical Co.
Monsanto Chemical Company
Philadelphia Quartz Co.

Densometers
W. & L. E. Gurley

Design Construction
Ebasco Services

Detergents
Adell Chemical Company
Calgon, Inc.
Cowles Chemical Co.
General Dyestuff Corp.
Monsanto Chemical Company
Nopco Chemical Co.
Philadelphia Quartz Co.
Rohm & Haas Co.
Wyandotte Chemicals Corp.

Dewaxing Chemicals
Adell Chemical Company
General Dyestuff Corp.
Nopco Chemical Co.

Digesters
Babcock & Wilcox Co.
The Bigga Boiler Works Co
Combustion Engrg. Co., Inc.
Foster Wheeler Corp.
Lukenweld
Pusey & Jones Corp.

Dirtee
Bird Machine Co.

Dispersing Agents
Adell Chemical Company
Calgon, Inc.
General Dyestuff Corp.
Monsanto Chemical Company
Nopco Chemical Co.
Rohm & Haas Co.

Doctors
Bird Machine Company
Black-Clawson Company
Downingtown Mfg. Co.
Lobdell Co.
Lodding Engineering Corp.
The Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

Doctor Blades
Bird Machine Company
Black-Clawson Company
Lodding Engrg. Corp.
The Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

Driers
Black-Clawson Company
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Hardinge Company, Inc.
Lukenweld
The Moore & White Co.
Murray Mfg. Co., D. J.
J. J. Ross Company
Red-Ray Mfg. Co., Inc.
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.
The Youngstown Welding & Engrg. Co.

Drives
Allis-Chalmers Mfg. Co.
Appleton Machine Co.
Bird Machine Co.
Black-Clawson Company
Chain Belt Company
Davis, Frank H., Co.
Dilts Machine Works
Downingtown Mfg. Co.
Fairbanks, Morse & Co.
Farrel-Birmingham Co.
General Electric Company
Gibbs-Brower Company, Inc.
Rodney Hunt Machine Co.
Link Belt Company
Moore & White Co.
Murray, D. J., Mfg. Co.
Pusey & Jones Corp.
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Syco Mfg. Co.
Valley Iron Works Co.
Westinghouse Electric Corp.

Dryer Drainage
Stickle Steam Specialties Co.

Dusters
Appleton Machine Co.
Downingtown Mfg. Co.
Frank W. Egan & Co
M. W. Jenkins Sons, Inc.
E. D. Jones & Son Co.
Moore & White Co.
D. J. Murray Mfg. Co.
John Waldron Corp.

Dusting Brushes
M. W. Jenkins Sons, Inc.

Dyestuffs
American Cyanamid Company, Calco Chemical Div.
Ciba Company
E. I. du Pont de Nemours & Co., Inc.
Geigy Co., The
General Dyestuffs Corp.
National Aniline Division, Allied Chemical & Dye Corp.
C. K. Williams & Co.
Witco Chemical Co.

Embossing Rolls
The Appleton Machine Co.
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
The Midvale Company
Northern Engraving & Mch. Co
B. F. Perkins & Son, Inc.
John Waldron Corp.

Emulsifiers
Adell Chemical Company
General Dyestuff Corp.
Nopco Chemical Co.
Rohm & Haas Co.
Wyandotte Chemicals Corp.

Enzymes
Rohm & Haas Co.

Evaporators
Foster Wheeler Corp.
Goslin-Birmingham Mfg. Co., Inc.
Murray, D. J., Mfg. Co.
Swenson Evaporator Co., Div of Whiting Corp.

Expanders
Mount Hope Machinery Co.

Fans
General Electric Co.
B. F. Perkins & Son, Inc.
Ross Engineering Co., J. O.

Feeders
Hardinge Company, Inc.
Merrick Scale Mfg. Co.
Leeds & Northrup

Felts
Appleton Woolen Mills
Asten-Hill Mfg. Co.
Bulkley, Dunton Pulp Co., Inc
Draper Bros. Corp.
Huyck & Son, F. C.
Lockport Felt Co.
Mt. Vernon-Woodbury Mills, Inc.
Morey Paper Mill Supply Co.
Orr Felt & Blanket Co.
Shuler & Benningholen
Waterbury Felt Co.
Waterbury, H., & Sons Co
Williams-Gray Co.

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Where

Felt Cleaners
Adell Chemical Company
Calgon, Inc.
Cowles Chemical Co.
General Dyestuff Corp.
Nopco Chemical Co.

Felt Conditioners
Bird Machine Co.

Felt Guides
Black-Clawson Co.
Frank W. Egan & Co.
Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Waldron Corp., John

Fillers
American Cyanamid Company, Industrial Chemicals Division
W. H. Loomis Talc Corp.
A. M. Meincke & Son, Inc.
Vanderbilt Co., R. T.
Witco Chemical Co.

Filters
Bird Machine Company
Cochrane Corp.
Hardinge Company, Inc.
Johnson Corp.
Moore & White Co.
J. O. Ross Engrg. Corp.
Witco Chemical Co.
Walworth Company

Fittings
Crane Company
Ladish Company
Phoenix Products Co.
Walworth Company

Flexible Couplings
Ajax Flexible Coupling Co.

Flooring, Grating and Treads
The Goodyear Tire & Rubber Company
Norton Co.

Flow Boxes, Stainless-Clad
Lukens Steel Co.

Forming Machines
Black-Clawson Co.
Downingtown Mfg. Co.
The Moore & White Co.
Noble & Wood Machine Co.
Oliver United Filters, Inc.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

Freeness Testers
Testing Machines, Inc.

Gaskets
The Goodyear Tire & Rubber Company

Gears
American Manganese, Steel Div.
Black-Clawson Company
Downingtown Mfg. Co.
Frank W. Egan & Co.
Farrel-Birmingham Co.
E. D. Jones & Sons Co.
Link Belt Company
Moore & White Co.
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Suburban Machine Co.
Valley Iron Works Co.
Waldron Corp., John
Westinghouse Electric Corp.

Grinders
Carthage Machine Co.
Farrel-Birmingham Co.
Gibbs-Brower Company, Inc
Lobdell Co.
Norton Company
Samuel C. Rogers and Company
The Sandy Hill Iron & Brass Works

Grinding Wheels
Norton Company

Guides, Web
Askania Regulator Company
The Moore & White Co.
Mount Hope Machinery Co.
Bound Brook Engrg. Co.

Gums
National Starch Products Inc.
Stein-Hall Co., Inc.

Heads
Babcock & Wilcox Co.
Lukens Steel Company

Heat Exchangers and Recovery Systems
William Allen Son's Company
Foster Wheeler Corp.
Stickle Steam Specialties Co.
Westinghouse Electric Corp.

Heating, Ventilating & Air Conditioning
The Appleton Machine Co.
Armstrong Machine Works
Cochrane Corp.
E. D. Jones & Sons Co.
General Electric Co.
Leeds & Northrup Co.
Minneapolis-Honeywell Regulator Co.
D. J. Murray Mfg. Co.
Red-Ray Mfg. Co., Inc.
Ross Engineering Corp., J. O.
Stickle Steam Specialties Co.
Valley Iron Works Co.
Westinghouse Electric Corp.

Hose (Air, Water, Suction, etc.)
The Goodyear Tire & Rubber Company

Impregnants
American Anode Div., The B. F. Goodrich Chem. Co.

Industrial Tractors
Clark Equipt. Co., Clark Tractor Div.
Towmotor Corp.

Ink Gravure
Gotham Ink & Color Co.

Instruments, Testing and Measuring
Askania Regulator Company
Bauer Brothers Co.
N. P. Bowsher
The Bristol Company
The Brown Instrument Co.
Cochrane Corp.
The Foxboro Company
General Electric Company
W. & L. E. Gurley
Leeds & Northrup Company
National Technical Laboratories
B. F. Perkins & Son
Taylor Instrument Cos.
Testing Machines, Inc.
Williams Apparatus Co., Inc.

Joints
Johnson Corp.
Perfecting Service Corp.

Jordan Fillings
Appleton Machine Co.
Bahr Brothers Mfg. Co.
E. D. Jones & Sons Co.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

Knives
Black-Clawson Company
Dilts Machine Works, Inc.
Hamblet Machine Co.
Heppenstall Company
E. D. Jones & Sons Co.
The Moore & White Co.
Taylor Stiles & Co.
Valley Iron Works Co.

Knot Boring Machines
DeZurik Shower Company

Laboratories
Timber Engrg. Co.

Laboratory Equipment
William Allen Son's Company
Appleton Machine Co.
Bauer Brothers Co.
The Biggs Boiler Works Co.
Bird Machine Company
Dilts Machine Works
W. & L. E. Gurley
E. D. Jones & Sons Co.
Leeds & Northrup Company
National Technical Laboratories
Taylor Instrument Companies
Testing Machines, Inc.
Valley Iron Works Co.

Lay Boys
Gibbs-Brower Company, Inc.
Hamblet Machine Co.
Moore & White Co.
Suburban Machine Co.

Lubricants
Sinclair Refining Co.
Socony-Vacuum Oil Co.
Sun Oil Company
The Texas Company
Tide Water Associated Oil Co.

Materials Handling
Cleveland Crane & Engrg. Co
The Wellman Engrg. Co.

Micrometers & Calipers
Farrel-Birmingham Co.
Montague Machine Co.
Lobdell Co.
Testing Machines, Inc.
Walker-Goulard-Plehn Co.

Moisture Content Control
Askania Regulator Company
Stickle Steam Specialties Co.

Motors and Generators
Allis-Chalmers Mfg. Co
Chicago Electric Company
Fairbanks, Morse & Co.
General Electric Company
Ingersoll-Rand Co.
Reliance Electric & Engrg. Co.

Nickel and Nickel Alloys
The International Nickel Co.

Nozzles
Link Belt Company

Packing Boxes
Johnson Corporation
The Moore & White Co.
Perfecting Service Corp.
Shartle Brothers Machine Co.

Paint
American Marietta Co., Valdura Division

Paper Machines
Bagley & Sewall Co.
Black-Clawson Company
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Lukenweld
Moore & White Co.
Pusey & Jones Corp.
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.

Paper Machine Slices
Black-Clawson Company
E. D. Jones & Sons Co.
The Moore & White Co.
The Sandy Hill Iron & Brass Works
Valley Iron Works Co.

Paper Tube Machinery
Dietz Machine Works
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Hudson Sharp Machine Co.
Langston Co., Samuel M.
Suburban Machine Co.

Pasting Machines
Black-Clawson Company
Davis, Frank H., Co.
Dilts Machine Wks.
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
Murray, D. J., Mfg. Co.
Moore & White Co.
Potdevin Machine Co.
Shartle Brothers Machine Co.
Waldron Corp., John

Penstocks
The Biggs Boiler Works Co.

Perforated Metal
Allis-Chalmers Mfg. Co.

Pipe
American Cast Iron Pipe Co.
Armco Drainage & Metal Products, Inc.
Babcock & Wilcox Co.
Crane Company
Ladish Company
Michigan Pipe Co.
Michigan Steel Casting Co.
National Tube Co.
Walworth Company
Youngstown Welding & Engrg. Co.

Pipe Fittings
American Cast Iron Pipe Co.
The American Rolling Mill Co.
Crane Company
Ladish Company
Michigan Steel Casting Co.
Phoenix Products Co.
Walworth Co.

Pipe Markers
W. H. Brady Co.

Pitch Control
General Dyestuff Corp.
Monsanto Chemical Company
Rohm & Haas Co.

Platers
Gibbs-Brower Company, Inc.
Perkins & Son, Inc., B. F.

Plates
Armco Steel Corp.
Babcock & Wilcox Co.
The Biggs Boiler Works Co.
J. O. Ross Engrg. Corp.
Lukenweld
Lukens Steel Company
Timken Roller Bearing Co.

Plugs
The Appleton Machine Co.
Black-Clawson Company
E. D. Jones & Sons Co.
Shartle Brothers Machine Co.

Precision Sample Cutter
Testing Machines, Inc.

Preservatives
E. I. du Pont de Nemours & Co.
General Dyestuff Corp.

Pressure Vessels, Steel and Alloy
William Allen Son's Company
Babcock & Wilcox Co.
The Biggs Boiler Works Co.
Combustion Engrg. Co., Inc.
Foster Wheeler Corp.
The Midvale Company

Presses
Black-Clawson Company
Dietz Machine Works
Farrel-Birmingham Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Hudson-Sharp Machine Co.
The Moore & White Co.
Paper Converting Machine Co., Inc.
Potdevin Machine Co.
Shartle Brothers Machine Co.
Valley Iron Works Co.
Waldron Corp., John
H. G. Weber & Co., Inc.
Williams Apparatus Co.

Pulp Classifier
The Bauer Bros. Co.

Pulp Stock Valves
Crane Company
Record Fdy. & Mach. Co.
Shartle Bros. Mach. Co.

Pulpers
American Paper Mchy. & Engrg. Works, Inc.
Bauer Brothers Co.
Dilts Machine Works
Shartle Brothers Machine Co.

Pulps
Brown Company
Bulkley, Dunton Pulp Co., Inc.
Gottesman & Co., Inc.
Elof Hansson, Inc.
Lyddon & Co. (America), Inc.
Parsons & Whittemore, Inc.

to Buy

Perkins-Goodwin Co.
Price & Pierce, Ltd.
Pulp and Paper Trading Co.
Pulp Sales Corp.

Pulpstones
Norton Company

Pumps
Allis-Chalmers Mfg. Co.
American Manganese, Steel Div.
American Paper Mchy. & Engrg. Works, Inc.
Black-Clawson Company
Buffalo Pumps, Inc.
Byron Jackson Co.
Dorr Company
Downingtown Mfg. Co.
Fairbanks, Morse & Co.
Frederick Iron & Steel, Inc.
Gibbs-Brower Company, Inc.
Ingersoll-Rand Co.
Johnson Corp.
Moore & White Co.
Nash Engineering Co.
Paper Converting Mch. Co.
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Warren Steam Pump Company

Radiant Burners
Red-Ray Mfg. Co., Inc.

Rag Cooking Processes
Adell Chemical Co.
William Allen Son's Company
The Kinsley Chemical Company
General Dyestuff Corp.
Rohm & Haas Co.

Rag Cutters
Gibbs-Brower Company, Inc.
B. F. Perkins & Son, Inc.
Taylor-Stiles & Co.

Recausticizing Plants
The Dorr Company

Recovery Systems
William Allen Son's Company
Babcock & Wilcox Co.
Bulkley, Dunton Pulp Co., Inc.
Combustion Engrg. Co., Inc.
Rodney Hunt Machine Co.
Moore & White Co.
D. J. Murray Mfg. Co.
Pusey & Jones Corp.
Ross Engineering Corp., J. O.
Valley Iron Works Co.

Reels
The Appleton Machine Co.
Black-Clawson Company
Downingtown Mfg. Co.
Hudson Sharp Machine Co.
Moore & White Co.
Paper Converting Mch. Co.
Rodney Hunt Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
The Smith & Winchester Mfg. Co.

Refiners
Appleton Machine Co.
Bahr Brothers Mfg. Co.
Bauer Brothers Co.
Dilts Machine Works
Gibbs-Brower Company, Inc.
E. D. Jones & Sons Co.
Morden Machines Co.
Murray, D. J., Mfg. Co.
Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Sutherland Refiner Corp.
Valley Iron Works

Regulators
Allis-Chalmers Mfg. Co.
Armstrong Machine Works
Bird Machine Company
The Bristol Company
Cochrane Corp.
DeZurik Shower Company
The Foxboro Company
Jones, E. D., & Sons Co.
General Electric Co.
Johnson Corp.
Leeds & Northrup Company
Minneapolis-Honeywell Regulator Co.
National Technical Laboratories
Paper and Industrial Appliances
Shartle Brothers
Stickle Steam Specialties Co.
Taylor Instrument Companies
Wallace & Tiernan

Research Chemists
Timber Engrg. Co.

Resins
American Cyanamid Company, Industrial Chemicals Division
The Dow Chemical Company
The Goodyear Tire & Rubber Company
Hercules Powder Co.
Monsanto Chemical Company
Rohm & Haas Co., Resinous Products Div.

Rolls
American Cast Iron Pipe Co.
Appleton Machine Co.
Black-Clawson Company
Downingtown Mfg. Co.
Frank W. Egan & Co.
Farrel-Birmingham Co.
Gibbs-Brower Company, Inc.
Lobdell Co.
The Midvale Company
The Moore & White Co.
D. J. Murray Mfg. Co.
Perkins, B. F., & Sons Co.
Pusey & Jones Corp.
J. J. Ross Company
Ross Paper Machy. Co.
Rodney Hunt Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Waldron Corp., John
The Youngstown Welding & Engrg. Co.

Roll Covers
The Cincinnati Rubber Mfg. Co.
The Goodyear Tire & Rubber Company
Stowe-Woodward, Inc.

Roll Stands
Cameron Machine Co.
Frank W. Egan & Co.
Moore & White Co.
Potdevin Machine Co.
John Waldron Corp.
H. G. Weber & Co., Inc.

Rope Carriers
The Moore & White Co.

Rotary Boilers
The Biggs Boiler Works Co.

Rotary Steam Joints
Johnson Corp.
The Moore & White Co.
Perfecting Service Corp.

Rubber Products
The Goodyear Tire & Rubber Company

Saturants
American Anode Div., The B. F. Goodrich Chem. Co.

Saturating Machines
Black-Clawson Company
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
Moore & White Co.
Noble & Wood Machine Co.
Potdevin Machine Co.
Shartle Brothers Machine Co.
Waldron Corp., John
Weber, Herman G.

Savealls
Bird Machine Company
Hardinge Company

Scales
Fairbanks, Morse & Co.
Merrick Scale Mfg. Co.
Testing Machines, Inc.
Walker-Goulard-Plehn Co.

Screen Plates
Bird Machine Company
Fitchburg Screen Plate Co.
Magnus Metal Corp.
Morey Paper Mill Supply Co.
Testing Machines, Inc.

Screens
Allis-Chalmers Mfg. Co.
American Paper Mchy. & Engrg. Works, Inc.
Appleton Wire Works
Appleton Machine Company
Bird Machine Company
Carthage Machine Co.
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
E. D. Jones & Sons Co.
Link Belt Company
Moore & White Co.
D. J. Murray Mfg. Co.
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.

Sheet Machines
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Suburban Machine Co.
Valley Iron Works Co.

Shower Pipes
Bird Machine Company
DeZurik Shower Company
Downingtown Mfg. Co.
Moore & White Co.
Sandusky Fdy. & Mch. Co.
Shartle Bros. Mach. Co.
Smith & Winchester Mfg. Co.

Shredders
Bauer Brothers Co.
Carthage Machine Co.
Gibbs-Brower Company, Inc.

Sizing
American Cyanamid Company, Industrial Chemicals Division
Black-Clawson Company
The Dow Chemical Company
du Pont, E. I., de Nemours & Co.
Glidden Company
Hercules Powder Co.
Monsanto Chemical Company
National Aluminate Corp.
Philadelphia Quartz Co.
Stein-Hall Co., Inc.

Sizing Tester
W. & L. E. Gurley

Slime Control
W. A. Cleary Corp.
The Dow Chemical Company
E. I. du Pont de Nemours & Co.
General Dyestuff Corp.
National Aluminate Corp.
Rohm & Haas Co.

Slitters
Black-Clawson Company
Cameron Machine Co.
Carthage Machine Co.
Dietz Machine Works
Downingtown Mfg. Co.
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co., Inc.
Hamblet Machine Co.
Hudson Sharp Machine Co.
Langston Co., Samuel M.
Machinery & Prod. Engrg. Corp.
Moore & White Co.
D. J. Murray Mfg. Co.
Potdevin Machine Co.
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Smith & Winchester Mfg. Co.
Suburban Machine Co.
Valley Iron Works Co.
Waldron Corp., John

Smoke Stacks
William Allen Son's Company
The Biggs Boiler Works Co.

Splicing Tissue
Williams-Gray Co.

Softness-Stiffness Tester
W. & L. E. Gurley
Testing Machines, Inc.

Soluble Oils
Adell Chemical Company
American Cyanamid Company, Industrial Chemicals Division
General Dyestuff Corp.
Nopco Chemical Co.

Solvents
Adell Chemical Company

Stainless Steel
American Cast Iron Pipe Co.
Armco Steel Corp.
Ingersoll Steel Div., Borg-Warner Corp.
Michigan Steel Casting Co.
The Midvale Company
U. S. Steel Corp.

Starch
American Cyanamid Company, Industrial Chemicals Division
A. M. Meincke & Son, Inc.
Clinton Industries, Inc.
National Starch Products Inc.
Stein-Hall Co., Inc.

Steam Joints
The Moore & White Co.

Steam Specialties
Babcock & Wilcox Co.
Cochrane Corp.
Combustion Engrg. Co., Inc.
Johnson Corp.
Perfecting Service Corp.
Shartle Bros. Mch. Co.
Stickle Steam Specialties Co.

Steel
Armco Steel Corp.
Carnegie Illinois Steel Co.
Ingersoll Steel Div., Borg-Warner Corp.
Lukens Steel Company
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Works
U. S. Steel Corp.

Steel, Clad
Babcock & Wilcox Co.
Lukens Steel Company

Steel Tanks
William Allen Son's Company
The Biggs Boiler Works Co.

Strapping & Strapping Machines
The Stanley Works

Stuff Chests
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Moore & White Co.
Shartle Brothers Machine Co.
Valley Iron Works Co.

Suction Boxes
Black-Clawson Company
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

Suction Unit
Paper & Industrial Appliances, Inc.

Sulphur
American Cyanamid Company, Industrial Chemicals Division
Texas Gulf Sulphur Co.
Witco Chemical Company

Sulphur Burners
Valley Iron Works Co.

Sulphur Dioxide
Ansul Chemical Company
Virginia Smelting Co.

Supercalenders
The Appleton Machine Co.
B. F. Perkins & Son, Inc.

Synthetic Latices
American Anode Div., The B. F. Goodrich Chem. Co.
The Goodyear Tire & Rubber Company
Nopco Chemical Co.

Tachometers
The Brown Instrument Co.

Talc
American Cyanamid Company, Industrial Chemicals Division
W. H. Loomis Talc Corp.

Tanks
William Allen Son's Company

Where to Buy

The Biggs Boiler Works Co.
Cochrane Corp.
E. D. Jones & Sons Co.
Kalamazoo Tank & Silo Co.
The Noble & Wood Machine Co.
B. F. Perkins & Son, Inc.
J. O. Ross Engrg. Corp.
Shartle Brothers Machine Co.
Waldron Corp., John

Tearing Testers
Testing Machines, Inc.

Tensile Testers
B. F. Perkins & Son, Inc.
Testing Machines, Inc.

Thickeners, Deckers and Savealls
The Appleton Machine Co.
Bird Machine Company
Bulkley, Dunton Pulp Co., Inc.
Carthage Machine Co.
Dilts Machine Works
Dorr Co.
Downingtown Mfg. Co.
Hardinge Co., Inc.
Moore & White Co.
D. J. Murray Mfg. Co.
Oliver United Filters, Inc.
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Valley Iron Works Co.

Timber Roof Truss Designs
Timber Engrg. Co.

Titanium
E. I. du Pont de Nemours & Co.
Titanium Pigment Co.
R. T. Vanderbilt Co.
Witco Chemical Company

Tools
Ingersoll-Rand Co.
The Stanley Works
Walworth Company

Tractors & Trucks
Towmotor Corp.
Clark Equipt. Co., Clark Tractor Div.

Transmissions
Link Belt Company

Traps
Armstrong Machine Works
Cochrane Corp.
Crane Co.
Johnson Corporation
Shartle Bros. Mch. Co.
Stickle Steam Specialties Co.

Tubes
Babcock & Wilcox Co.
National Tube Co.

Tubing, Mechanical
National Tube Co.

Tubs
Rodney Hunt Machine Co.
Shartle Brothers
Valley Iron Works Co.

Turbines
Allis-Chalmers Mfg. Co.
De Laval Steam Turbine Co.
General Electric Company
Hunt, Rodney, Mach. Co.

Turpentine Recovery
Foster Wheeler Corp.

Used Equipment
Frank H. Davis Company
Gibbs-Brower Co.
Thomas W. Hall Co.
J. J. Ross Company
Ross Paper Machy. Corp.
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Suburban Machine Co.

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The Brown Instrument Co.
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William Powell Co.
Record Fdy. & Mch. Co.
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Shartle Brothers Machine Co.
Stickle Steam Specialties Co.
Taylor Instrument Companies
Trimbey Mach. Wks.
Valley Iron Works Co.
Walworth Company

Washers
Bird Machine Company
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Oliver United Filters
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Calgon, Inc.
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General Dyestuff Corp.
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The Mayer Machine Co.
Potdevin Machine Co.
Shartle Brothers Machine Co.
Waldron Corp., John
Weber, Herman G.

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General Electric Company
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Carthage Machine Co.
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Pusey & Jones Company
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The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

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Adell Chemical Company
General Dyestuff Corp.
Hercules Powder Co.
Monsanto Chemical Company
Nopco Chemical Co.
Rohm & Haas Co.
Wyandotte Chemicals Corp.

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Davis Engineering Corp.

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Machinery & Prod. Engrg. Corp.
Moore & White Co.
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Potdevin Machine Co.
Pusey & Jones Corp.
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
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Waldron Corp., John

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Lindsay Wire Weaving Co.
Williams-Gray Co.

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